South Carolina
Department of Agriculture

Hugh E. Weathers
Commissioner

Specialty Crop Block Grant Program – Farm Bill
USDA AMS Agreement #12-25-B-1695

FINAL PERFORMANCE REPORT

Submitted by:

Amy Howard London
Grants Administrator
alondon@scda.sc.gov
803-734-7209

Clint Leach
Assistant Commissioner
jcleach@scda.sc.gov
803-734-2191

Submitted on:
December 21, 2016

Project Title: Marketing and Promoting SC Grown Watermelons

Partner
South Carolina Watermelon Association

Summary
The South Carolina Watermelon Association (SCWA) is a grower-led organization with the mission to promote the SC watermelon industry, and thus, increase the sales of Certified SC Grown watermelons. Watermelons grown in SC bring an annual sales figure between $30-35 million to our local economy.

Funding from this agreement enabled SCWA to promote the SC watermelon industry to retailers, wholesalers, and to the consuming public via an extensive promotions program that featured an industry spokesperson. The responsibility of the spokesperson was to act as an ambassador and public relations representative for the watermelon growers, and the SCWA.

Approach
The objective of the promotional program was to increase the consumption of Certified SC Grown watermelon while providing education regarding the health benefits one may obtain by having fresh watermelon incorporated into their diet. The promotional agenda included appearances at retail food stores, media appearances, and participation in various festivals and food show events. The goal was to make impressions on more than 150,000 persons/consumers over the course of the grant period.

Specific signage was developed for promotional use in conjunction with the National Watermelon Association. Items included recipe cards utilizing watermelon as a primary ingredient in dishes to be served at all meals, booklets highlighting the health benefits of watermelon, and point of purchase signage identifying which watermelons sold in stores were grown in South Carolina. These materials were effectively utilized in retail stores around the state and at promotional events. They were available at each event and in retail stores for consumers to take with them and help trigger sales. Information provided will also affirm message of health benefits of consuming watermelon to secure future purchases. By educating the public about the health benefits of consuming watermelons, South Carolina growers sold over 6,600,000 pounds of seeded melons and over 74,000,000 pounds of seedless melons during the 2014 season. This is a significant increase in movement at an average of 11.1%, which surpassed our target increase of 10%.

Training the spokesperson begins in February of each year. This person is required to meet with the major watermelon producers in South Carolina, and visit their farms during the planting season. One to one discussions with each producer provides insight to the challenges and obstacles these growers must face in producing their crops, and thus strengthens the spokesperson's knowledge of the industry. In April of each year, the growers determine the projected key periods of volume of the crop, and begin working with the industry spokesperson to schedule all of the promotional events. During the 2014 watermelon season, the spokesperson held promotional activities and/or product tastings at each of the following venues:

- Cooper River Bridge Run
- SC State Fair
- ETV 'Making it Grow' television series
- Three community watermelon festivals
- Five different university football programs

- PMA Fresh Summit, Anaheim, CA (18,500 Attendees)
- Taste of Pinellas, St. Petersburg, FL
- Stores in Newfoundland, Canada
- Three different NASCAR races
    - Sparta, KY – 105,000 attendees
    - Indianapolis, IN – 125,000 attendees
    - Long Pond, PA – 100,000 attendees
- Two minor league baseball team promotions
- Marine Marathon in Washington DC (30,000+ Runners and Spectators)
- Thirty two store samplings within South Carolina

Goals and Outcomes Achieved

In 2014, the South Carolina Watermelon Spokesperson reached over 155,000 consumers through an extensive on-site and in-store promotional schedule. By educating the public about the health benefits of consuming watermelons, South Carolina growers sold over 6,600,000 pounds of seeded melons and over 74,000,000 pounds of seedless melons during the 2014 season. This is a significant increase in movement at an average of 11.1%, which surpassed our target increase of 10%. It was also reported that the price of cut watermelon rose from an average of $1.73 per pound to $1.82, proving consumers demand for watermelon even when not purchasing the whole melon. There was also an increase in demand of 6.7% shown in mini melons, which shows consumer expanding interest in the watermelon category. Revenue from South Carolina grown melon sales rose from around $9 million in 2013 to $12 million in 2014. South Carolina has steadily risen in production since 2010, and with the assistance of the watermelon spokesperson we hope to continue this success.

Beneficiaries

Due to the effective use of the South Carolina watermelon spokesperson, growers in our state experienced a significant increase in demand for SC Grown watermelons and as a result, saw sales increase for the 2014 season. By increasing demand from newly-educated consumers, retailers responded to demand with additional orders. Consumers reacted to the message of watermelon's superior health benefits and as a result sales increased. This sales growth provided a much needed income to growers, which in turn provide jobs in the economically challenged, rural areas in our state.

Movement of melons from South Carolina jumped up from 52 million pounds in 2013 to almost 81 million pounds in 2014. This movement is a direct reflection of increased demand and came at an important timeframe as FOB dropped from $0.163 to 0.143. By driving up demand growers were still able to maintain a financial gain in a tough market, from $9 million in 2013 to $12 million in 2014.

Lessons Learned

Based on the success of this project, we have learned that effectively engaging consumers with science-based information leads to increases in sales. Consumers are most interested in watermelon as a source of replenishment for nutrients lost during exercise or other athletic activity. Consumers particularly reacted positively to samples of fresh watermelon received at sporting events. As a result, the South Carolina Watermelon Association will continue to push the message that "SC Grown Watermelon Fuels Athletes" at promotions during upcoming seasons. Sales statistics showing increased demand in mini melons and fresh-cut watermelon also prove that consumers are looking for additional ways to enjoy watermelon in addition to normal purchase of whole melons. Research has shown that SC residents

were 8% more likely to purchase watermelon when informed about the health and nutritional benefits of the fruit, and 31% more likely to purchase when seeing a large display in the store. As the SCWA moves forward with the spokesperson program, we will utilize this data and work towards more on-site promotion citing nutritional facts to continue the trend of increased sales.

Contact Information
Matt Cornwell, Executive Director
South Carolina Watermelon Association
mcornwell@scda.sc.gov
803-734-2225

Project Title: Finding Ways to Control Fungicide-resistant *Anthracnose* Pathogens of Peach and Strawberry

Project Partner

Clemson University, Department of Plant Pathology, Dr. Guido Schnabel

Project Summary

This project was focused on a new mutant strain of the pathogen *Colletotrichum gloeosporioides,* the causal agent of anthracnose fruit rot (AFR). This pathogen has caused significant yield loss in mid- and late season peach cultivars over the last four years, as noted by peach growers and Extension agents alike. A consensus was formed that this strain of AFR is mutant, and resistant to the two key AFR fungicide classes; quinone outside inhibitors (QoIs) and methylbenzimidazole carbamates (MBC), which were the recommendations for AFR disease management.

Preliminary studies also showed that the same mutant strain was capable of causing a devastating disease in strawberry crops, known as anthracnose crown rot (ACR).

The study was executed to investigate the phenotypic and genotypic properties of this mutant strain with the ultimate goal of designing new and effective fungicide-based control options. The specific objective was to determine the genetic basis of resistance, identify effective chemical classes of fungicides and to design new and effective spray strategies for AFR in peach and ACR in strawberry disease prevention.

Project Approach

This study investigated the phenotypic and genotypic properties of mutant strains of AFR and ACR with the ultimate goal of designing new and effective fungicide-based control options for peach and strawberry growers. The improved understanding of resistance mechanism combined with efficacy data generated in this study was instrumental for preventing further outbreak of the disease in affected areas. Results have already been adapted into the regional spray guides for these crops.

In 2014, we successfully prevented further outbreaks of this dangerous disease of peaches in affected areas and therefore contained the resistant genotype in the respective areas. With the help of a new spray program and aided by weather less favorable for disease development, yield loss in late season varieties decreased from 60% in 2013 to less than 5% in 2014.

We determined the genetic changes that made this fungus resistant to fungicides. To investigate the molecular basis of fungicide resistance in the mutant strains from McBee, we cloned the target genes for QoI and MBC fungicides, specifically the cytochrome b and the beta tubulin gene from 1 sensitive and 3 resistant isolates. Nucleotide variations linked to the resistance phenotype were investigated. Genes were PCR amplified, sequenced, assembled, aligned, and compared. Results show that resistance is genetically manifested in form of point mutations in the cytochrome b and beta tublin genes.

We identified fungicides of different chemical classes effective for the control of the mutant strains. During the 2012 outbreak we collected spores with cotton swabs from symptomatic peaches in McBee, South Carolina. They were stored in the refrigerator and were used to obtain a population of single spore isolates. In addition we collected isolates from other farms on the Ridge and the Piedmont area. The latter were used as baseline populations because they were believed to be still sensitive to QoI and MBC fungicides. After single spore isolation, we determined the in vitro sensitivity of the isolates to

various representative active ingredients of 4 different classes of fungicides (including anilinopyrimidines (APs), demethylation inhibitor fungicides, three generations of succinate dehydrogenase fungicides, and phenylpyrroles) to determine effective fungicides against the McBee strain. Evidence collected from my recent trip to China indicated that certain DMI fungicides may be highly effective against *Colletotrichum* species and indeed our lab results indicated surprising activity of certain DMI fungicides.

Specifically difenoconazole and propiconazole and the combination of the two were very active against our field mutants (**Figure 1)**. The combination of Inspire Super plus Tilt was superior in efficacy compared to other fungicides.

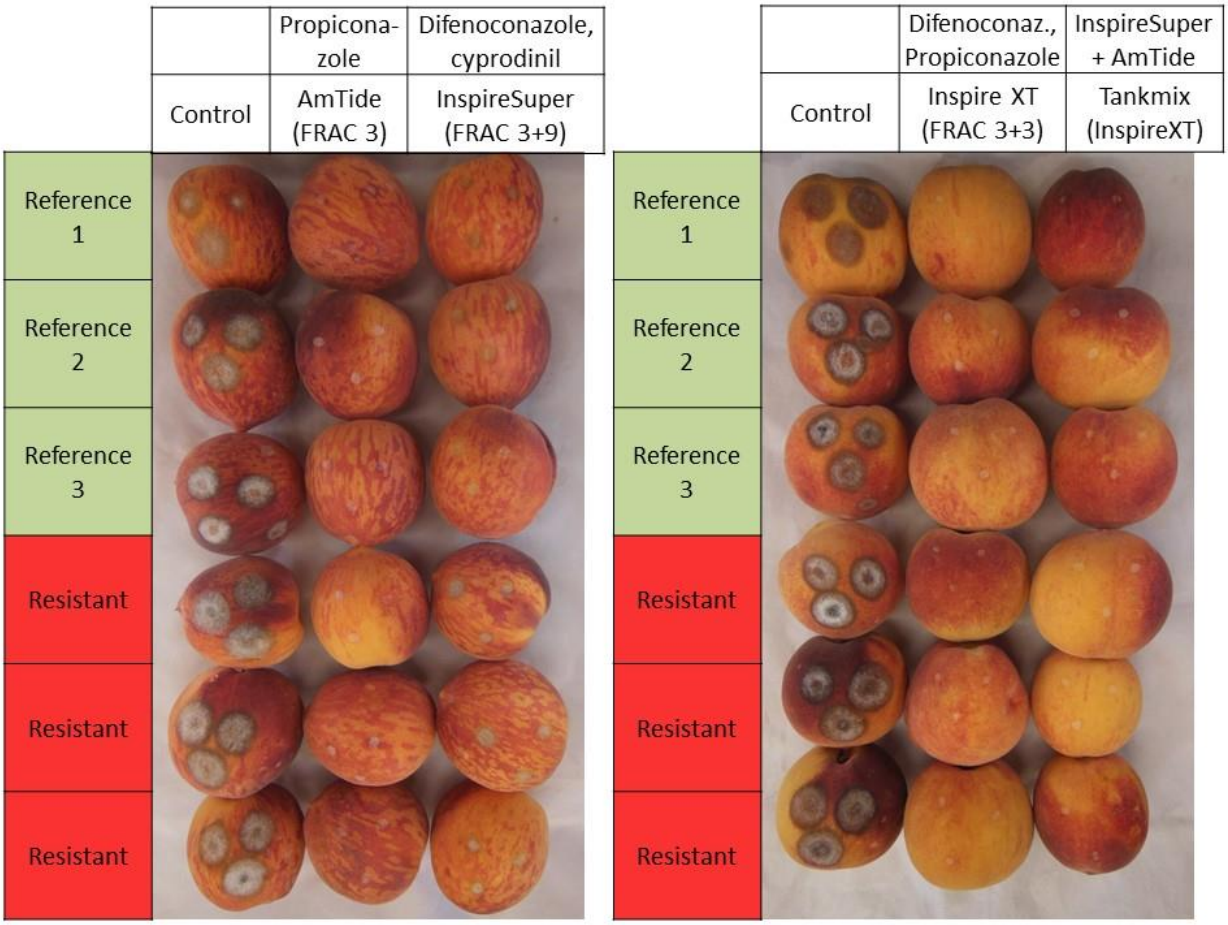


Figure 1. Propiconazole and difenoconaozole controlled *Colletotrichum* isolates effectively that are resistant to other chemical classes of fungicides.

This study investigated the phenotypic and genotypic properties of mutant strains with the ultimate goal of designing new and effective fungicide-based control options. This improved understanding of resistance mechanism combined with efficacy data generated in this study was instrumental for preventing further outbreaks of the disease in affected areas. Results have already been adapted into our regional spray guide.

In 2014 we successfully prevented further outbreaks of this dangerous disease of peaches in affected areas and therefore contained the resistant genotype in the respective areas. With the help of a new

spray program and aided by weather less favorable for disease development, yield loss in late season varieties decreased from 60% in 2013 to less than 5% in 2014.

Deliniation and identification of *Colletotrichum* species and their association with resistance to fungicides:

We found that two distinct species are involved in causing disease of peach. A total of 28 *Colletotrichum* spp. isolates associated with peach fruit anthracnose were collected in 2012 from Chesnee (10 isolates), McBee (10 isolates), Monetta (2 isolates), and Ridge Spring (6 isolates), South Carolina. Morphological characteristics indicated that all 28 isolates belonged to the *C. gloeosporioides* species complex. Phylogenetic analysis of the combined calmodulin (*CAL*), glyceraldehyde-3-phosphate dehydrogenase (*GAPDH*) and β-tubulin (*TUB2*) gene sequences identified two species, *C. siamense* and *C. fructicola*. Cultural characteristics such as colony growth rate, shape and size of conidia, and appressoria from representative isolates of the two species largely matched previous descriptions for *C. siamense* and *C. fructicola*. Koch's postulates for *C. siamense* and *C. fructicola* were fulfilled confirming pathogenicity of the two species on peach. A new, two-step multiplex PCR assay was developed to facilitate differentiation of the four known *Colletotrichum* spp. causing anthracnose of peach in South Carolina: including *C. acutatum*, *C. truncatum*, *C. siamense*, and *C. fructicola*. The first step distinguished *C. acutatum* from *C. truncatum* and the two members of the *C. gloeosporioides* species complex. The second assay distinguished *C. siamense* from *C. fructicola* isolates.

Only one of the species identified to cause disease on peach revealed fungicide resistance features. Single-spore isolates of *Colletotrichum siamense* were either sensitive or resistant to both thiophanate-methyl and azoxystrobin with EC_{50} values $\geq$100 µg/ml. Resistant isolates revealed the E198A mutation in the β-tubulin (*TUB2*) gene and the G143A mutation in the cytochrome b (*CYTB*) gene. Nucleotide sequence analysis of the complete *CYTB* gene from genomic DNA of *C. siamense* isolates revealed an intronless genotype (*Cs*I) and a genotype revealing two introns (*Cs*II) at amino acid positions 131 and 164. Resistance to thiophanate-methyl or azoxystrobin was not found in isolates of *Colletotrichum fructicola* collected from peach fruit. The *CYTB* gene of isolates of this species was of the *Cf*I genotype or revealed a unique *Cf*Ia genotype. Phylogenetic analysis of *C. siamense* isolates from different locations and different crops showed that the resistant isolates were genetically closer to each other than to sensitive isolates, suggesting that field resistance to thiophanate-methyl and azoxystrobin fungicides is derived from a common ancestor.

Goals and Outcomes Achieved

The genetic changes that make this fungus resistant to fungicides was determined.

We shared our findings at the state production meeting in Gaffney, SC in February 2014 with 105 participants; at the state production meeting in Edgefield, SC in February 2014 (45 participants) and 2015 (48 participants); at the regional fruit and vegetable conference in Savannah, GA in January 2014 and 2015 (+/- 120 participants each year), and at the professional fruit workers conference in Clemson SC in September 2014 (60 participants) and Montgomery AL in 2015 (45 participants). At all of those meetings growers were educated about the best way to control this threatening disease of peaches. The total number of growers, extension agents, and specialists reached was about 330 persons. The results were also shared at the national American Phytopathological Society annual meeting in Minneapolis, MN in August, 2014. We will also share information from this year at production meetings in January and February 2016. The growers were polled and responded by hand signal to determine how many farms intended to implement the newly developed strategies for pre-harvest fruit rot control and

results indicate that all growers (100%) present in the meetings suspecting problems said they would all implement the suggested changes during the coming 2015 and 2016 growing seasons.

Beneficiaries

The direct beneficiaries of this research are the South Carolina peach growers and strawberry growers (17 commercial growers) because they were able to control summer diseases more effectively. Pre-harvest losses were reduced. Indirect beneficiaries are the consumer because fruit does not decay as quickly when effective fungicides are applied.

Lessons Learned

One of the lessons learned was that secondary pathogens such as *Colletotrichum sp.,* may become primary pathogens due to resistance development. We also learned that spray programs that have worked for many years to control the primary pathogen may select effectively for resistance in secondary pathogens in different ways. In our case, one of the rotation chemistries (DMIs) was not effective against the secondary pathogen, providing increased selection pressure for the other chemistries (QoIs) applied. We also learned that determining what species is present in peach orchards is critical information for the design of spray programs. Not all species have been capable of developing resistance.

Contact Information

Dr. Guido Schnabel, Clemson University, Department of Plant Pathology
gschnabe@clemson.edu
964-656-3311

Additional Information

References to peer reviewed papers resulting from research related to this project:

Hu, M.J., A. Grabke, and G. Schnabel 2015. Investigation of the *Colletotichum* species complex causing peach anthracnose in South Carolina. **Plant Dis.** 99:797-805.

Hu, M.J., A. Grabke, M.E. Dowling, H.Holstein and G. Schnabel 2015. Resistance in *Colletotichum siamense* from peach and bluseberry to thiophanate-methyl and azoxystrobin. **Plant Dis.** 99:806-814.

Project Title: Increase awareness of, and desire for, Certified SC Grown Specialty Crops by Educating the Consumers through Social Media, Earned Media, Paid Media and the Redesign of the website www.agriculture.sc.gov

Project Partner
South Carolina Department of Agriculture; Marketing Division and the Public Information Division

Project Summary
The goal of the South Carolina Department of Agriculture (SCDA) branding program, Certified South Carolina, is to represent all food producing members that compose the agriculture community in our State. Through the use of the brand, SCDA is able to engage the consuming public through all available marketing channels, while at the same time, educate them as to where their food was sourced. Today's competitive marketplace requires engaging as many persons as possible, and it is imperative for all types of businesses to be pro-active in both traditional and web based media outlets. To make a lasting impression upon our thought processes, it takes more than three different exposures to the same product name or logo within a short period of time. This type of media coverage demands more and alternate marketing strategies, with numerous avenues for promotion, for all entities, including non-profits and government agencies who strive to protect their stakeholders.

More than 1600 members comprise the 'Certified SC' program. The majority of members are small family farmers, who have limited, if any, office staff members available to conduct the day to day needs of a media awareness campaign. To this end, the SCDA marketing staff assists the 'Certified SC' members by representing these constituents en mass through advertising with both social media activities, and traditional advertising methods. 86% of the membership is made of specialty crop producers. Therefore, this project was augmented by funds from the SC General Assembly, in the SCDA Marketing Budget, to represent the remaining percentage of Certified SC Grown producer members of protein, dairy, and other non-specialty crop products.

Project Approach
The purpose of this project was to increase the consumer awareness of foods that are locally grown or processed in SC by use of the media outlets and advertising methods listed below. The objective of the project was to reach as many members of the specific demographic of the consumer audience who are interested in supporting farmers in South Carolina.

The media platforms incorporated into this project's work plan included social media (Facebook, Twitter Pinterest, Instagram), earned media (interviews with key personnel), paid media (television, radio, and outdoor board advertisements), and the redesign of the SCDA website, www.agriculture.sc.gov.

1. Beginning in October, 2013, SCDA placed all social media responsibilities to one marketing specialist, with the intent to insure quality and timely posts that were accurate and factual. This person was responsible for posting a minimum of 10 posts per week that contained information about SCDA events at the three farmers' markets, or facts/recipes about specialty crops being harvested at that time.
2. The Director of Public Information notified major media outlets statewide to fourteen plant and flower festivals, two collegiate 'Certified SC Grown' tailgate events, one Christmas tree promotional day, two pumpkin promotional days, and two general specialty crop promotional days, which included our predominant summer crops; peaches, tomatoes, watermelons, etc. Each of these activities took place between October 2013 and October 2015.

3. The Director of Marketing worked with appropriate SCDA staff members and Chernoff-Newman staff members to create specialty crop outdoor board advertisements. Examples are included in this report under 'Additional Information'
4. The Information Technology staff, worked with the Public Information Director to coordinate the redesign, coding, and creative development of the Department website, www.agriculture.sc.gov.
5. The firm Chernoff-Newman received a flat rate contractual fee to design and program the upgraded website. The goal was to reduce the content from the previous number of 4000 pages, to a consolidated user friendly format. The result includes updated photographs, larger tabs, numerous forms and assistance information for farmers, all members of the 'Certified South Carolina' program, frequently asked questions, and key contact information for each commodity board.

Goals and Outcomes Achieved

Earned Media:

SCDA tracked 21 earned media interviews in 2014, and 14 in 2015, for a total of 35 story exclusives that were directly related to 'SC Grown' specialty crops. The most popular crop featured in the stories was watermelon; the second most popular feature was about the peach crop. The interviews conducted (31 of the 35 earned media spots) were primarily on television stations that are in the Midlands area of South Carolina, and the Commissioner of Agriculture was the interviewee. Within these TV spots, which were live interviews at specialty crop events taking place at the State Farmers Market in Columbia, the Commissioner was able to personally inform and invite the public to come to the Market and attend the free events.

The remaining four earned media exclusives were cover stories in produce marketing publications such as The Produce News. Each of these stories appeared in publications that receive a national following. Martin Eubanks, Assistant Commissioner and Director of Marketing, was featured as the interviewee. He provided information to retail produce buyers, managers, and executives through this forum. The primary topic discussed was the anticipated volumes for the specialty crops produced in SC, for each respective year of this project.

Social Media Data:

1. Social Media Page — Number of Followers

	2013	2015
SCDA Facebook	397	1832
Certified SC Facebook	6872	9030
State Farmers Market Facebook	10,553	16,140
Twitter	6342	8856
Instagram	N/A	1398

2. Number of people reached from October 2013 – October 2015
    a. SCDA Facebook Page 58,271
    b. Certified SC Facebook Page 82,426
    c. State Farmers Market Page 57,510

3. Follower Interactions with posts from October 2013- 2015

Facebook Page	Likes	Comments	Shares
SCDA	1,756	136	278
Certified SC	1,791	286	380
State Farmers Market	1,803	338	463

Website Data:

1. Calendar Year Number of Unique Views % Increase

2014	155,337	
2015 (as of November, 2015)	818,558	700% increase over 2014

2. The month of April has the highest number of unique website visits, with more than 4,045 visits per day, in 2015. The average number of unique visits per day was 1151 in 2014. In 2015, this average more than doubled to be more than 2588 unique visits per day.
3. In 2015, twelve (12) events focusing on specialty crop production were highlighted on the home page, and featured on the calendar of events on the SCDA website. These events ranged from the SC Strawberry Festival to Successful Pecan Production in South Carolina.

Beneficiaries

According to USDA NASS, the sales of specialty crops grown in South Carolina increased by 4.4% from 2013 ($141,020,000.00) to 2014 ($147,224,000.00). With these statistics, this project has been regarded as successful.

Lessons Learned

Combination of federal and state appropriated monies enabled a lot of promotional activities to occur, as well as a major project come to completion that the SC General Assembly would not expand budgets to include.

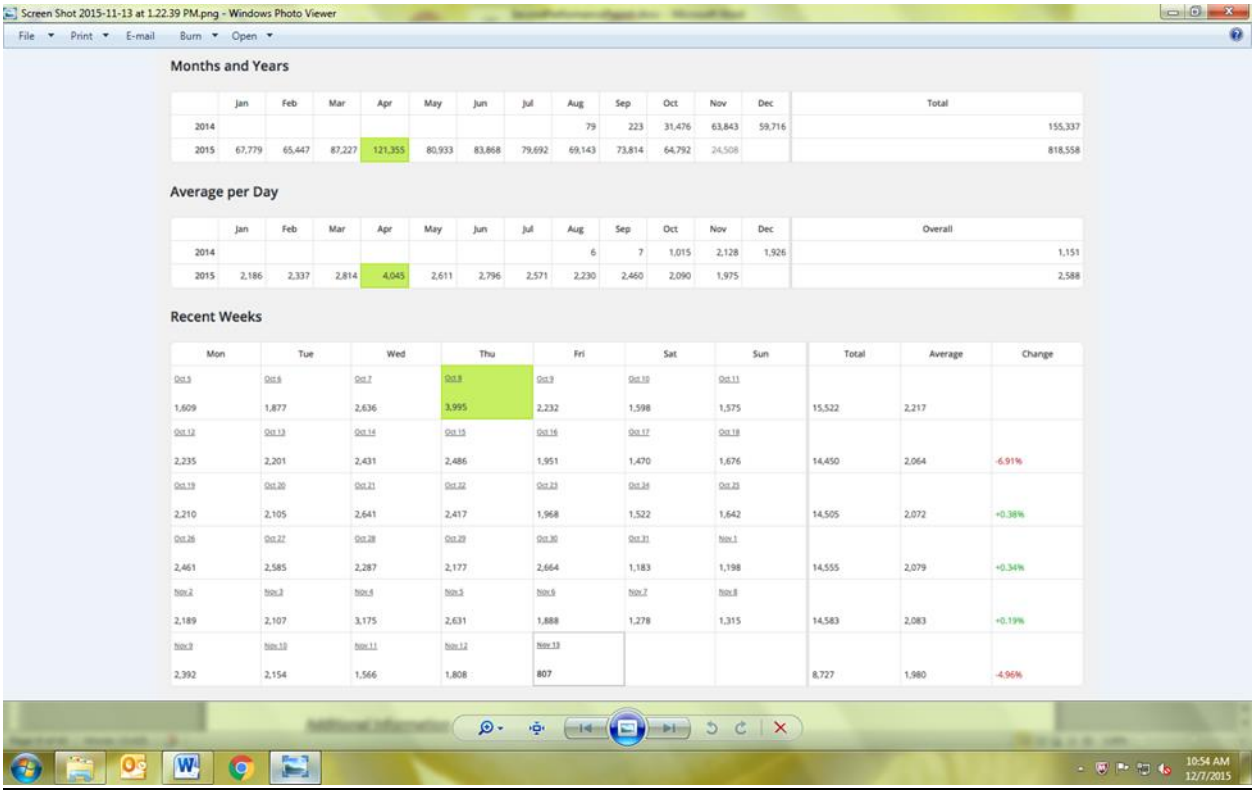
Contact Information

Stephanie Sox, Director of Public Information, SCDA
803-734-2210
ssox@scda.sc.gov

Elizabeth Shuler, Marketing Specialist, SCDA
803-734-2200
eshuler@scda.sc.gov

Additional Information:

Screenshot of Website Data for Number of Views:



Examples of Outdoor Boards:
Columbia Farmers Market

Florence/Pee Dee Farmers Market

Adams Outdoor Advertising-Florence, SC

PROOF OF PERFORMANCE REPORT

ADVERTISER	Florence Farmer's Market	**DDI CONTRACT**	201500235
AGENCY	Chernoff Newman-Farmer's Market	**PRODUCT TYPE**	Bulletins
AGENCY P.O. #		**MARKET**	Northeastern SC
SALES REP		**COMMENCING**	12/7/2015
DESIGN		**EXPIRING**	1/3/2016

LOCATION No.	CITY	LOCATION DESCRIPTION	IMP	ILL.	DIR	DESIGN	POSTED	REMOVED
18031	Florence	I-95 0.2 mi N/O Rd 63 WS	149387	Y	N		12/7/2015	1/4/2016

Close-Up Photo

Approach Photo

1385 Alice Drive Florence,S.C. 29505

12/9/2015 2:20:44 PM Dot2Dot Ad Manager 5.7.3, r1891 1

Project Title: SC Organic Growers Certification Cost Share Program

Partner
South Carolina Department of Agriculture, Economic Development Division

Summary
During the lapse of the National Organic Certification Cost Share Reimbursement Program that occurred as a result of the legislative backlog of the 2014 Agricultural Act/Farm Bill, SCDA elected to obligate portions of the Specialty Crop Block Grant Program funding to assist organic growers by offering an organic certification cost share program.

The project was largely mirrored on the National Organic Program (NOP), and was successful in the intent to financially support organic growers when typical federal funding sources were not available to offset the cost of certification.

The purpose was to encourage specialty crop producers in South Carolina to obtain, or continue, their organic certification, by sustaining the cost sharing program during the funding lapse that occurred in the USDA NOP.

Approach
Upon approval of this project in the signed State Plan in September 2014, the SCDA Grant Administrator notified professional counterparts at Clemson University (the certifying agency in SC), Carolina Farm Stewardship Association (grower advocate association), and the SC Fruit, Vegetable and Specialty Crop Growers Association (grower advocate association) to inform each organization that a cost share program was in effect, despite the lack of the administration of the 2014 Farm Bill. To secure understanding of the program, each key person was emailed, and given the contact information for the SCDA Grant Administrator to distribute to those specialty crop producers seeking assistance. An updated Application for Reimbursement, as well as the required W9, was attached so that each organization could distribute them as needed to its stakeholders. The Application for the cost share reimbursement program was also posted on the SCDA website. The Market Bulletin, a biweekly publication (electronic and hard copy distribution) ran notices about the Cost Share Reimbursement program, directing those interested to the SCDA website. Updates about the program were given at the SC Fruit, Vegetables and Specialty Crop Growers Association annual meeting, which was held in December, 2015, in Myrtle Beach, SC.

After each producer received their USDA certificate, copies of the certificate as well as the corresponding receipts, were mailed to the SCDA Grant Administrator. Prior to approval for reimbursement, the Grant Administrator contacted Clemson to insure all certificates are authentic.

The only firms to receive reimbursement for their Organic Certification were those that included the list of confirmed crops by the certifying agency with the cost share application. Funds were only distributed to growers that either solely produced specialty crops, or used a significant portion of the specialty crops in a value-added product. There were two applications denied for cost share reimbursements, as each of these firms were primarily protein producers.

Goals and Outcomes Achieved
Ten operations were reimbursed for their expenses related to obtaining Organic Certification.

Beneficiaries

The following matrix indicates which producers were reimbursed, as well as their location and certificate number(s):

Name of Operation	**Location (SC)**	**Certificate #**	**Crops Certified**
Carolina Kiwi	Elloree	DPI-10030	Kiwi
Gibson Farms	Westminister	DPI-11016	Vegetables
Riverwood Holistic Farm	Kingstree	DPI-14014	Herbs; Medicinal Plants
Lowcountry Coffee Roasters	Ravenel (2 locations)	DPI-11020	Coffee Beans
Royal Labs	Johns Island	DPI-09008	Herbs
C-Breeze Farms	Nesmith	DPI-07020	Fruits and Vegetables
Mahon Family Farms	Cheraw (2 locations)	DPI-08018	Sweet Potatoes
City Roots	Columbia and Lake City	DPI-13007	Micro Greens, Leafy Vegetables
Longleaf Plantation	Orangeburg	DPI-09017	Peas, Sweet Corn
Freehouse Brewery	North Charleston	DPI-14004	Hops

Lessons Learned

The primary challenge with this project was the fact that numerous organic producers in the state were not aware of SCDA offering the cost-share program. Despite outreach attempts made by SCDA and Clemson University, staff persons from both organizations were told on numerous occasions that because the USDA was not offering the cost share reimbursement program, they believed no assistance was available.

Contact Information

Amy London, Grants Coordinator
803-734-2210
alondon@scda.sc.gov

Project Title

Economic Feasibility of a Horry County Food Hub Promoting SC Grown Specialty Crops

Project Partner

Clemson University, Blake Lanford, Extension Specialist, Project Manager

Project Summary

Horry County, the home of Myrtle Beach, South Carolina, attracts a large level of spending by visitors who are helping to fuel growing demand for locally produced food. Regional growers are interested in meeting this demand but are limited by retail requirements with respect to lot size, timing, and quality (including food safety aspects such as Good Agricultural Practices (GAP) certification). A number of communities have turned to food hubs as a means of aggregating production by local growers and providing appropriate marketing functions, such as storage and meeting cold chain standards.

This project has evaluated the feasibility of a proposed food hub for the Pee Dee Region of South Carolina. The analysis includes the evaluation of interest by regional growers and buyers, as well as the determination of organizational and infrastructure needs.

Based on survey responses from specialty crop producers, produce buyers, and chefs in the region, the project has helped to confirm that a food hub in or near Horry County would be feasible, and would assist in increasing economic development for the rural economies in this area.

Myrtle Beach, South Carolina, by far the largest city in Horry County, is one of the top tourism destinations on the East Coast. With over 14 million visitors each year, this area has a high demand for sales in restaurants and grocery stores relative to the local population. An analysis of annual sales by food and beverage stores, as well as food service and drinking place vendors indicated that tourists purchase $469.8 million worth of product from these sectors annually (ESRI). This implies that 42.3% of a typical food dollar in the area comes from tourists. Arguably, tourists are a strong potential market for local and regional specialty crop producers to increase sales of their produce. However, despite the potential market, both fruit and vegetable production are underdeveloped both locally (Horry County) and regionally (the Pee Dee region of the state). In both cases, the contribution of local and regional fruit and vegetable producers to their respective economies is well below the national average.

Due to the fact that Horry County attracts a large level of spending by visitors and because of the growing consumer demand for locally produced food, the region is in a position to grow the local food system, increase the production of 'Certified SC Grown' produce, increase the incomes of local farmers, and facilitate rural development. In support of a previous study conducted by Clemson University (Hughes, 2013), local farmers and produce distributors were informally surveyed to determine their interest in producing and selling more locally grown produce. Farmers in the area are eager to produce more fruits and vegetables if there is a market available; distributors indicate a strong and growing demand by food service establishments for locally grown fruit and vegetables. However, there is a market gap between producers and distributors. Most specialty crop producers are typically small in size and grow limited amounts of produce that is often inconsistent in timing and quality. Distributors demand relatively large amounts of produce delivered in a consistent and timely manner while also meeting food safety and quality standards.

Therefore, the purpose of this project was to examine the feasibility and economic impact of a potential food hub in Horry County, and the greater Pee Dee Region of South Carolina. The counties comprising

the Pee Dee Region are Chesterfield, Darlington, Dillon, Florence, Georgetown, Horry, Marion, Marlboro and Williamsburg.

Both Horry County and the Pee Dee Region are currently underdeveloped in term of specialty crop production needed to capitalize on the larger local foods market created by the high levels of tourism in the region. Creation of a food hub in Horry County could potentially solve this problem and provide specialty crop producers access to the larger markets.

Project Approach

This project was a study conducted to examine the feasibility of a food hub facility that would specialize in fruit and vegetable aggregation, and be located in Horry County. Feasibility was determined by the level of interest of local specialty crop producers in selling to a food hub as well as the level of interest of the potential buyers of the food hub products.

Regional (Horry County and the Pee Dee Region) farmers and regional buyers of food hub products were both surveyed to ascertain their levels of interest. Specialty crop producers were also surveyed regarding services they would like to see provided by the food hub, while buyers were surveyed regarding their produce safety and quality requirements for purchasing from a food hub. Because of the emphasis on specialty crop production, a question indicating production specific types of specialty crops was included in the survey. Additional meeting registration lists have been maintained on behalf of meetings coordinated by Clemson Cooperative Extension exclusively for this project.

Surveys were distributed to fruit and vegetable producers and produce buyers in Horry County and the surrounding region at meetings, in person, and electronically by the Clemson University Community Development Extension Agent in Horry County. In particular, surveys were distributed to approximately 100 vegetable growers that attended a Clemson University sponsored training session on March 6, 2014 in Turbeville, SC. Surveys were also distributed to all 50 members of the Waccamaw Market Cooperative, an organization formed to support the development of farmers markets in Horry County and neighboring counties. Link to a web-based version of the survey was provided to Clemson University Extension Agents in each of the nine Pee Dee counties. Because of the nature of the distribution of the survey, it was not possible to ascertain the actual number for the population that was surveyed. For example, surveys may not have been distributed by each regional Extension Agent. Undoubtedly, however, the number of both current and potential fruit and vegetable producers in the Pee Dee region who received a survey numbered in the hundreds.

Within the survey, producer interest and willingness to participate in a food hub, production levels and practices, and needs from a locational, functional and infrastructure perspective were assessed. The potential groups of food hub buyers, consisting of restaurants, retailers, brokers, and distributors selling local produce, were also surveyed to gauge their interest and need in purchasing produce from a food hub. Written and electronic surveys, as well as in-person and telephone interviews were conducted to collect data from potential buyers.

The steps outlined in the approved project proposal resulted in the gathering of information and data that informed the results of the feasibility analysis to stakeholders. The first step involved the organization of a local stakeholders group made up of members of advisory bodies that work with Cooperative Extension on similar initiatives.

The first group known as the Waccamaw Market Cooperative includes approximately 20 specialty crop producers who actively participate in the networked farmer's market program throughout the region. The second group supplying participants to the local and regional stakeholders group includes participants in the standing Horry Agribusiness Advisory Committee. Members of this committee were part of the project that's previous completion (Horry Agribusiness Strategic Plan) resulted in the development of the proposal for this feasibility analysis.

Individual interviews were conducted with participants in this combined local and regional stakeholders group for the purposes of framing the content for the feasibility study, informing researchers of previous and/tangential work conducted for this type of activity and identifying potential survey respondents for future data collection.

As a result of initial stakeholder meetings, a preliminary report was compiled to include information on defining local foods, defining food hubs, the need for food hubs, challenges of food hubs, food hub operations, economic impacts of food hubs, and best practices for stakeholders involved in food hubs. Though the report does not offer a case study review of successful food hub operations in other locations a detailed review of available literature and information retained directly from food hub operations such as Grow Food Carolina have informed the conclusions outlined in the best practices section of the report.

The preliminary report and findings contained therein have been presented to the following local and regional groups: Horry Agribusiness Advisory Committee, Horry Extension Advisory Council, and Waccamaw Market Cooperative Board of Directors. The final report will be published on Extension webpages and represented to each of the above mentioned stakeholder groups. Extension staff members are currently working with regional groups to convey the findings of the feasibility analysis and acquire funding related to the development of infrastructure for a food hub. Extension staff are working are additionally working through the non-profit Waccamaw Market Cooperative program to create a sustainable business model that could support some form of food hub aggregation activities.

Literature was also reviewed concerning the cost of operating a food hub, and the level of revenues and product volume needed to maintain such an operation. The relevant economic and management literature has been accessed and evaluated concerning successful food hub operations. Preliminary results indicate that a food hub in/or near Horry County would be feasible. Data for an IMPLAN-based input-output model was obtained for use in evaluating the potential economic impact of a food hub on the local and regional economies.

Additional information in the report includes a detailed methodology and results related to the administration of surveys for both buyers and producers participating in a potential food hub project, supporting data tables/appendices and recommendations for the pursuit of a functional business model within the affected area. Data for an IMPLAN-based input-output model has also been obtained for use in evaluating the potential economic impact of a food hub on the local and regional economies.

Goals and Outcomes Achieved

Overall, the results presented through the survey identified an interest and willingness for producers to participate in a food hub in the Pee Dee Region. Survey results were also beneficial in identifying location, timing, and transportation requirements, as well as specific infrastructure and service needs and concerns. The survey identified a distance range of no more than 50 miles from the farm operation, which will be helpful in the selection of the geographic location of the food hub. A willingness and

ability of specialty crop growers to deliver their produce to the food hub 1 to 2 times a week is useful in accounting for supply needs at different points. In general, there seems to be significant interest in the food hub providing cold storage, packing and washing facilities, and to a lesser extent, a refrigerated truck. In terms of producer training, a wide variety of topics were listed by survey participants. Moving forward, it appears that there is significant producer interest in the region and this result indicates that from a producer perspective a food hub in or near Horry County could be feasible. Additionally, the results derived from this project identified an interest and willingness for buyers to participate in a food hub in the Pee Dee Region with a potential to reach over $1,000,000 in sales of locally produced fruits and vegetables annually.

The following results and data information points were obtained as a result of this project:

- 45% of the specialty crop producers were very interested in selling to a food hub, assuming fair market price and demand, 40% were extremely interested, while 15% were moderately interested in doing so.
- Producers were asked to identify the specialty crops grown by their operation, as well as the acreage dedicated to these crops, and total production basis. The most popular specialty crops grown in this region by survey respondents are okra (80%), summer squash (75%), cucumbers (70%), tomatoes (70%), peppers (60%), collards (60%), sweet corn (55%), cabbage (55%) and watermelon (50%). These results indicate that there is a diverse supply of produce grown in the region, which could lead to a greater diversity in fruits and vegetables available for sale and distribution through the food hub.
- Of the survey participants that recorded their specific acreage per crops, collards represented the largest total acreage with 511.3 acres, while watermelon (378 acres), sweet corn (115 acres), tomatoes (109 acres) and broccoli (100 acres) rounded out the top five crops in terms of acreage in production.
- 851 acres were reported as available for potential produce production expansion.
- 94.7% of producers do not currently grow under contract, thus showing a potential for these specialty crops to be sold to the food hub on a non-contractual basis.
- Current sales outlets were determined to be farmers markets (61.1%), on-farm sales (55.6%) and roadside stands (33.3%). Also, 22.2% sold to wholesale outlets and restaurants, while 16.7% sold to U-pick operations and CSAs, and (11.1%) sold to retail outlets such as grocery store chains. This information indicates that there is major room for expansion into additional markets in the region.
- Commodity crop producers in the area were asked if they would be interested in diversifying their production into growing specialty crops assuring fair and proven markets and prices. Among the respondents, 53.9% were interested in diversifying into specialty crops, while 38.5% were not interested, and 7.7% stated that they would be interested only under a forward contract. This response is important to the project as it indicates a moderate degree of willingness by primarily commodity producers to diversity into specialty crops, which could then increase the potential supply to the food hub in the region.
- Location and transportation preferences also play a major role in determining the potential success of a regional food hub in or nearby Horry County. Currently, 57.9% of respondents indicated that they transport their products directly to consumers through CSA's, farmer's markets, or other venues. Producers also deliver to a distributor (42.1%), or sell their products retail on the farm (26.3%). The fact that the majority of producers in the region surveyed either transport products directly to consumers or deliver to a distributor is favorable for food hub development. In particular, participation in a food hub could free producers of the valuable time

currently committed to delivering directly to consumers or to a distributor. The fact that many respondents also deliver to a distributor could pose a challenge to the food hub because these distributors are already working directly with the producers.

- The majority of respondents (36.8%) would be willing to travel up to 50 miles to deliver their produce to a food hub for aggregation and distribution. This information is useful as it indicates a food hub located in the western part of Horry County or in the eastern part of a nearby county would be a logical location for the operation.
- Organizing a reliable product to distribute from a food hub to buyers typically requires a good deal of planning to ensure consistent quantity and quality of available product. With this in mind, fruit and vegetable producers were asked if they would be willing to participate in pre-season crop planning with the food hub management, to ensure a schedule regarding type, quantity, and timing of the produce. 50% of those surveyed indicated that they would be willing to participate in pre-season crop planning, while 25% were unsure, 15% it would depend on additional specifics, and 10% said no.
- Training activities offered by the food hub are often very important and can vary between food hubs. Survey respondents also showed interest in training activities that the food hub could provide. Among the respondents, the most popular food hub training activities were GAP certification (50%), marketing assistance (50%), budget/financial management training (37.5%), liability insurance training (37.5%), season extension (37.5%), specialty crop post-harvest handling (37.5%) Given the increased emphasis on food safety regulations, the importance of training activities conducted by food hub operation is expected to increase.
- Accordingly, producers were also asked to identify their greatest concerns related to food hubs. The largest concern was the uncertainty regarding production costs and profitability from selling wholesale (42.9%), uncertainty about signing a contract (42.9%), uncertainty regarding quantity requirements (42.9%), lack of farm storage (35.7%), affordable GAP certification (35.7%), and uncertainty regarding liability insurance and producer responsibility for insurance (35.7%).

Beneficiaries

In terms of the area of interest for this study, vegetable sales were just slightly over $1 million and the Pee Dee region had vegetable sales of $7.8 million. If Horry County developed a food hub and sold up to $1 million in output in three years, it would have a large impact on the local farmers' income and employment. The food hub would give the local specialty crop producers a distribution service to access the large amount of restaurant and grocery store sales in the region that stem from the high level of tourism.

Lessons Learned

A major obstacle for this project was the relatively low response rate to the buyer surveys. The buyer response rate can be classified as low because although the Pee Dee region lacks numerous grocery store chains, there is an ample supply of restaurants in and around Myrtle Beach and the Pee Dee region that did not respond to the survey. Also, many of the restaurants in the area are fast food chains, and were not considered part of the targeted population.

Many of the surveys, both producer and buyer, were administered electronically, and the low response rate was calculated in part by when the initial contact made by email link was ignored. Efforts to increase survey responses included additional emails and conversations with potential suppliers and buyers.

Contact Information
Blake Lanford, Clemson Extension
843-365-6715 Ext 115, blakel@clemson.edu

Project Title- The Ornamental Horticulture Education Project 2013-14

Project Partner
South Carolina Nursery and Landscape Association

Project Summary
The approach to the Ornamental Horticulture Project 2013-14 was for the South Carolina Nursery and Landscape Association (SCNLA) to create and provide an educational program based on topics requested by the industry and positive information to help nursery industry businesses succeed. This included all aspects of the industry and its "direct influencers" (landscape contractors and other installers, retail garden centers, etc.) We also conducted the program at convenient times and with no increase in registration fees. We choose February because it is a slow time of the year for the industry which makes it an easier time to attend. The Education Committee (made up of representative of the different areas of the industry) select seminar topics based on previous seminar evaluations and on needs they feel the industry has. We encourage our speakers to interact with participants outside of the seminar area (i.e. at the trade show, during refreshment breaks, lunch, etc.) Our goal is to create an open, inviting environment with speaker / attendee interaction inside the meeting room and out. We try to plan the program around information that attendees both need (business, environmental, etc.) and what they want (pesticide applicator recertification CEU's and new plant information). This combination makes a more attractive program for so many with limited time for educational programs. The project continues the goals of the educational programs previously funded through the Specialty Crop Block Grant Program agreements in two ways. First, the funds received through this grant enable the SCNLA to continue a highly regarded program at a minimum cost to the participants. Secondly, being able to attract and pay the travel costs of the speakers to come present at the educational program ensures that SCNLA is able to bring the best professionals to South Carolina to share their knowledge and experience with our industry members. Without the continued support of this grant program, the SCNLA (a non-profit organization) would not be able to offer its stakeholders such a valuable, pertinent, and timely educational program on an annual basis.

Program elements contributing to the timeliness of this project are primarily centered on the educational aspect of the project. Professional members of the landscaping industry in South Carolina depend on the workshops and seminars to be part of their ongoing educational experience. The curriculum of these educational sessions are changed every year to directly reflect issues or trends which may affect the industry, such as major legislative issues, changes in pesticide uses or regulations, or water use policies/restrictions. Keeping members of this industry updated on these types of issues in a timely and open forum manner only enables them to have the tools needed to be credible and reliable professionals in the field.

Growers have the opportunity to order free passes, promotional stickers, event brochures, and posters to help promote the event. This helps to reach a broader group of direct influencers to the conference. We printed 1,200 free passes and 1,150 were distributed to exhibitors to give out or given out at other events, 13 of the 18 posters were requested, 1,250 of the stickers were requested (the stickers are 2" oval stickers imprinted with the event name, date, website, location and contact phone number that growers can stick on their catalogs, outgoing envelopes, etc. to their buyers) and 490 brochures were

given out by growers and 120 given out at other industry events to help promote the conference. This is in addition to the brochures and postcards that SCNLA mails out.

We also had an optional tour of Moore Farms Botanical Garden so participants could see first hand the use of art, organics, and new plant varieties in use.

The purpose of the Ornamental Horticulture Education Project for 2013-14 was to provide a timely and informative program on issues that affect the ornamental horticulture industry in South Carolina. Topics selected for educational track include business, environmental issues, and marketing demands. The SCNLA strives to offer a variety of topics that meet the needs of the diverse "green" industry in our state. There is a constant need for new "problem solving" information, new plant material and new marketing opportunities. The event aims in providing the industry by bringing together University faculty, industry professionals and related industry experts to provide a variety of information at one location, at a time of year that traditionally has a slower work schedule for the industry members, which makes it easier for the participants to be away from their jobs/companies.

The objectives of this project were to provide:

1. Pesticide Applicators Re-certification credits, which are needed yearly by license holders
2. Seminars on highly requested topics from 2013 participant evaluations
3. A venue where representatives of all the different segments of the ornamental horticulture industry can network
4. Offer programming that conveniently includes a variety of opportunities for the participants (i.e. education, networking, connect sellers (growers) and buyers (landscapers, garden centers, public garden facilities)
5. A marketing venue for growers to meet new customers and vice-versa

The sole purpose of this event is to benefit the ornamental horticulture industry. The goal is to provide valuable information in a timely manner for the various segments of the industry. While the program format is very similar to the agendas in previous years, each year the content of the seminars changes to reflect the suggestions provided by participant evaluations, changes problems in the industry, regulatory changes, available presenters, and ideas from the education committee.

<u>Project Approach</u>

The SCNLA/SCHI Education committee met and reviewed the evaluations from SCHI 2013 and the brochures from ornamental horticulture educational events. They discussed suggestions from the evaluations, current industry needs and the criteria for the Specialty Crop Grant program, and then outlined the educational program for "The Ornamental Horticulture Project 2013-14".

This committee is made up of nursery growers, University faculty, and direct influencers (Landscape contractors and garden center representatives) of nursery products.

The educational program for 2013-14 included the use of organics in the nursery and landscape industry, sustainability, pest and disease control, business management and marketing, new plants and uses, good management practices, and technology. After the committee meeting, SCNLA Executive Director Donna Foster contacted possible speakers, collected seminar titles and descriptions and speaker qualifications, then confirmed the final program. With that information she was able to apply for Pesticide Applicators License Continuing Education Units and International Society of Arboriculture Continuing Education Units for relevant seminars.

The next step was to develop the promotional pieces. Foster provided all of the descriptions, event times and dates, and photos for the graphic artist to create the full color print materials (promotional postcards, free passes, brochures, posters). These items were developed, proofed and sent to the printer. The first promotional postcard mailed the first week of December 2013, the 8-page brochure was mailed the 2nd week of December 2013, and the second postcard mailing the last week of December 2013. Posters, free passes and conference brochures were mailed to growers/exhibitors as they were requested during the months of November, December and January so they could help promote the conference. All of these mail pieces have the same cover "theme" to make them more easily recognized. SCNLA mailed the brochures and postcards with "Address Service Requested" from the US Postal Service so that "bad" addresses (moved- no forwarding address, etc.) are returned to SCNLA then the mail file can be corrected. The mail service also provided a list of "bad" addresses so that the mail list could be updated more quickly.

On-line conference registration opened on December 9, 2013. Registrations would also be mailed and faxed in. In late December Foster sent each of the speakers a packet containing a copy of the program, a list of the audio/ visual equipment available, the speaker's hotel room reservation, and a speaker reimbursement form to be completed after the seminar.

The speaker evaluation form was updated and slight changes were made to the evaluation form for the Spring Boot Camp since it was a "round-robin" hands-on event instead of a traditional seminar. To encourage attendees to complete the forms and turn them in a drawing for $50 would be made from the completed surveys that were turned in. In the weeks after the seminars the evaluations were tallied and will be used to plan other educational programs.

In the weeks following the conference, Foster thanked and reimbursed the speakers as they sent in their reimbursement information.

Promotional articles, ads, etc. were printed in the South Carolina Greenhouse Growers e-newsletter, in the Southern Region International Society of Arborist newsletter, the SC Department of Agriculture *Market Bulletin*, the *South Carolina Nurseryman*, Virginia Nursery and Landscape Association magazine, and *Nursery Notes*. We advertise with neighboring state Nursery Associations to encourage their buyers to buy from SC Growers. Informational handouts were also distributed at the SC Landscape and Turfgrass Association Conference and the Trees SC Conference.

<u>Outcomes and Goals Achieved</u>

- 469 Pesticide Applicators License CEU's were earned
- 45 International Society of Arboriculture CEU's were earned
- 356 Total participants in the various educational programs

Our goal was to have 2,150 industry representatives on our mailing list and we now have 2,222. 450 speaker/topic evaluations were returned to SCNLA for tallying and use in planning the 2015 conference and other educational events.

We had a target of 75% of the respondents increasing their knowledge after participating in the seminars and every seminar on the program received a 78% or higher rating. (See speaker evaluations for specific rating.)

There were 3 reasons beyond our control that we feel impacted what we think is a low attendance. 1) Bad weather the week before our conference caused landscape contractors to stay home and work during the good weather the week of the Education Project, 2) A new cycle for SC Pesticide Applicator Re-certification credits began on January 1, 2014 so there was no sense of urgency to get credits, 3) The Southern Region of International Society of Arborists was hosting its annual conference in Myrtle Beach two weeks after our event so arborists with limited time and resources would chose to go to the International Society of Arborists conference instead of our event.

Beneficiaries

Whenever valuable information is shared the industry benefits. While our participants earned needed Certified Education Units (CEU's) for Pesticide Applicator Licenses and International Society of Arborists certifications, they also learned from the one-on-one conversations with the speakers. By learning how to reduce pesticide use and /or to use pesticide more safely the attendees, their fellow employees and their customers are safer. By learning about new plant material and better business practices they make their businesses more viable and successful. Growers at the trade show benefits from having the attendees visit their booths and see their products.

All of the topics were relevant to people in the "green" industry, which provided the opportunity for attendees to see the industry from different perspectives. The attendees are business owners, laborers, retailers, and some do it all so this event gives them the opportunity interact and learn from each other. This was also a networking opportunity for growers and their customers to meet and talk.

Specific Breakdown of Beneficiaries:

- 469 Pesticide Applicators License (Continuing Education Unit) CEUs were earned
- 45 International Society of Arboriculture CEUs were earned
- 356 Total participants in the various educational programs (170 registered + 17 grower/exhibitors + 15 Extension agent/teachers + 28 students attended the Wednesday concurrent seminars)
- 53 Spring Boot Camp attendees
- 63 Landscape Management program attendees
- 10 What's in YOUR Water program attendees

Lessons Learned

There seems to be an interest in some more detailed multi-hour topics, for example landscape design and QuickBooks®. Also, an increased enforcement of trucking regulations in South Carolina, there was a request to have a program on trucking regulations which given the safety element involved is good for everyone to hear.

Contact Information

Donna Foster, Executive Director
South Carolina Nursery & Landscape Association
4661 Crystal Drive
Columbia, SC 29206
Phone (803)743-4284
Fax (803)787-2919
scplant@bellsouth.net

Project Title: Development of Peach Varieties with Superior Qualities for Enhanced Production, Increased Consumption and a Competitive Advantage for the South Carolina Peach in the Global Market

Partner: Clemson University, Dr. Ksenija Gasic, Project Leader

Project Summary

Despite the hundreds of existing peach varieties grown for the fresh marketplace, there is a continuing need to develop new varieties as the requirements of consumers and industry change. To develop peach varieties suitable for growing in South Carolina and the southeastern regions of the country, we need better selection methods to identify parental stocks with desirable traits and genetic information about inheritance of fruit quality and other important characteristics to make development of improved varieties successful.

Consumption of fresh peach fruit is in decline due to poor fruit quality delivered to the consumers. Producers are being forced to harvest less than optimally mature fruit to prevent fruit damage during the packing process and transportation to the markets. Immature fruit lacks eating quality. Conventional fruit-tree breeding is in need of a cost effective market discovery approach to enable genome-wide association mapping for variety development. Identification of markers linked to genes controlling fruit quality and nutritional content, could be used to enhance the success of fruit-tree breeding programs by providing a powerful tool for improving breeding efficiency. The purpose of this project was to enable more efficient parental and seedling selection for improved fruit quality and nutritional content in a conventional peach breeding program.

The overall goal is to provide better quality and increase nutritional value in peaches produced and marketed in South Carolina, leading to tastier and healthier food choices for consumers and a marketing advantage for our growers.

This project built on the previously funded project #12-25-B-1253 by extending fruit quality and nutritional content evaluations for additional two ripening seasons and including analysis of individual sugars and acids. Seasonal variability affects accumulation of nutritional compounds. Therefore, evaluation of fruit quality and nutritional compound accumulation over four consecutive years provided better insight into potential of the existing peach cultivars to provide healthy and nutritious fruit for consumers and a source of variability for breeding program. It also improved our confidence level in the genome wide association mapping for individual compounds.

Project Approach

Project activities were divided into two parts; phenotypic data collection and genome wide association study. Phenotypic data comprised of fruit quality [fruit firmness, size, weight, soluble solids, individual sugars (sucrose, glucose, fructose and sorbitol), titratable acidity and individual acids (malic, citric, quinic, shikimic and fumaric), and phytonutritional (antioxidants, anthocyanins, flavonoids and total phenolics)] content evaluations. Phenotypic data were collected on first class fruit from 16 peach varieties ('Blazeprince', 'Caroking', 'Cary Mac', 'Contender', 'Coronet-N', 'Fireprince', 'Flavorcrest', 'Harvester', 'Julyprince', 'Juneprince', 'O'Henry', 'Redglobe', 'Rich May', 'Rubyprince', 'Springprince', and 'Summergold') grown at Titan Farms in Ridge Spring, SC. A box of first class fruit was randomly picked from the packing line, representing at least two different fields and two different harvest times for each variety during May – August in the 2014 and 2015 harvest seasons. In addition, fruit quality and phytochemical composition was evaluated for 324 accessions grown in a *Prunus sp.* collection at

Clemson University, and representing peach germplasm and important parents used in the peach breeding program. Fruit maturity at harvest was also measured for all fruit received from growers. Genotyping data for SSR markets, associated with bacterial spot fruit resistance have been collected for all analyzed accessions.

A survey of attendees, approximately 30 growers mainly from South Carolina and Georgia, regarding fruit quality and nutritional content of peach fruit was conducted at the Southeast Fruit and Vegetable Conference, Savannah, GA in January 2014. Results of the survey were shared and discussed with growers during annual meeting with Advisory Board of peach breeding program, and used in parental cross planning in the 2015 and 2016 season.

Specific results include:

- Fruit quality evaluation revealed significant differences among analyzed individuals for all fruit quality parameters. Fruit quality parameters were influenced by variety, ripening season, the environmental conditions, and/or applied horticultural practices in the year of evaluation.
- Recommendation to growers to harvest fruit with a maturity index between 0.8-1.0 to ensure good quality and resilience during the packing was successfully accepted, as the decision when to harvest at Titan Farms was guided using this maturity index.
- In the 2014 and 2015 seasons, fruit firmness was positively correlated with maturity index, while soluble solids (SSC) and acidity (TA) showed no difference between fruit of different maturities. SSC/TA ratio, however, was negatively correlated with the fruit maturity index suggesting mature fruit taste better.
- In 2014 due to spring frost and low yields, fruit from only 10 varieties were analyzed. The funds for individual sugar and acid analyses that were not utilized in 2014 due to lower number of samples analyzed were used to expand the analysis to the fruit tissue collected in the 2013 ripening season (during project #12-25-B-1253).
- Total sugars (sucrose, fructose, glucose and sorbitol) were highly influenced by variety, ripening season and environment (Figs. 1 and 2). Environmental conditions and or management practices in 2014 caused lower total sugar accumulation in all analyzed varieties.
- Similar levels of sucrose, fructose, glucose and sorbitol were accumulated in fruit of peach varieties for all ripening groups (Fig. 3).
- The predominant sugar was sucrose. Fructose is 1.7 sweeter than sucrose while glucose has only 0.7 sweetness of sucrose. Higher fructose accumulation might positively influence consumer perception and likability of peach fruit. Varieties ripening later in the season tend to accumulate more fructose than earlier ripening ones (data not shown).

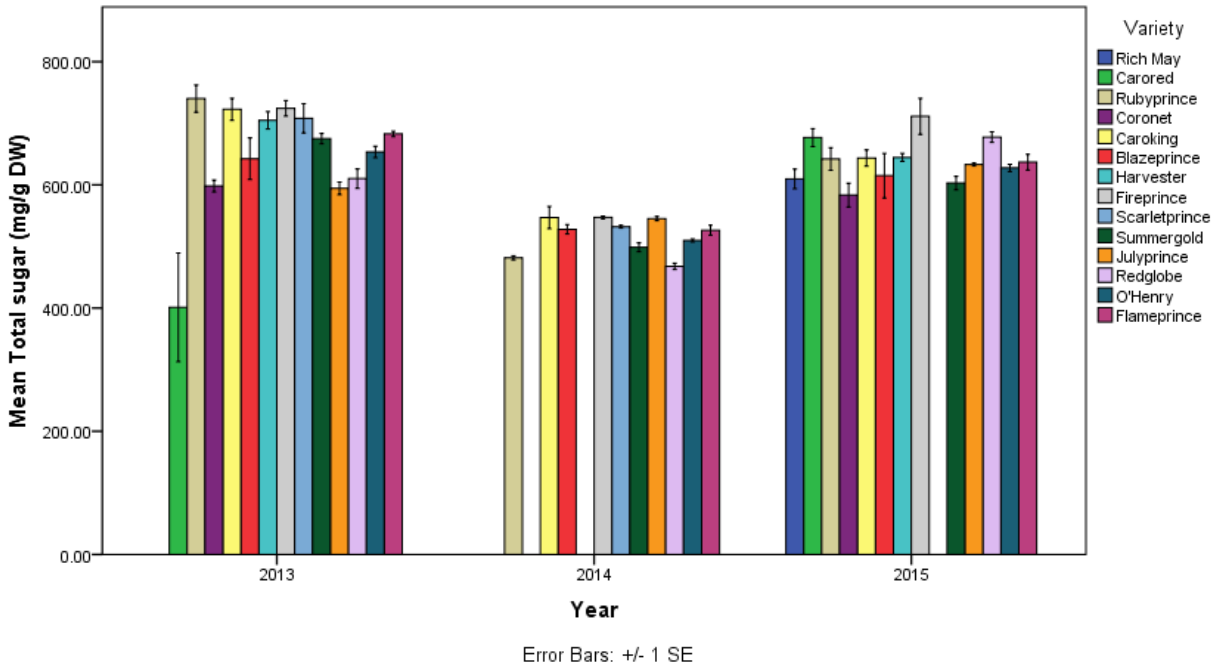


Fig. 1 Total sugar (sucrose, fructose, glucose and sugar alcohol, sorbitol) accumulation in 14 peach cultivars grown at Titan Farms as detected in different years.

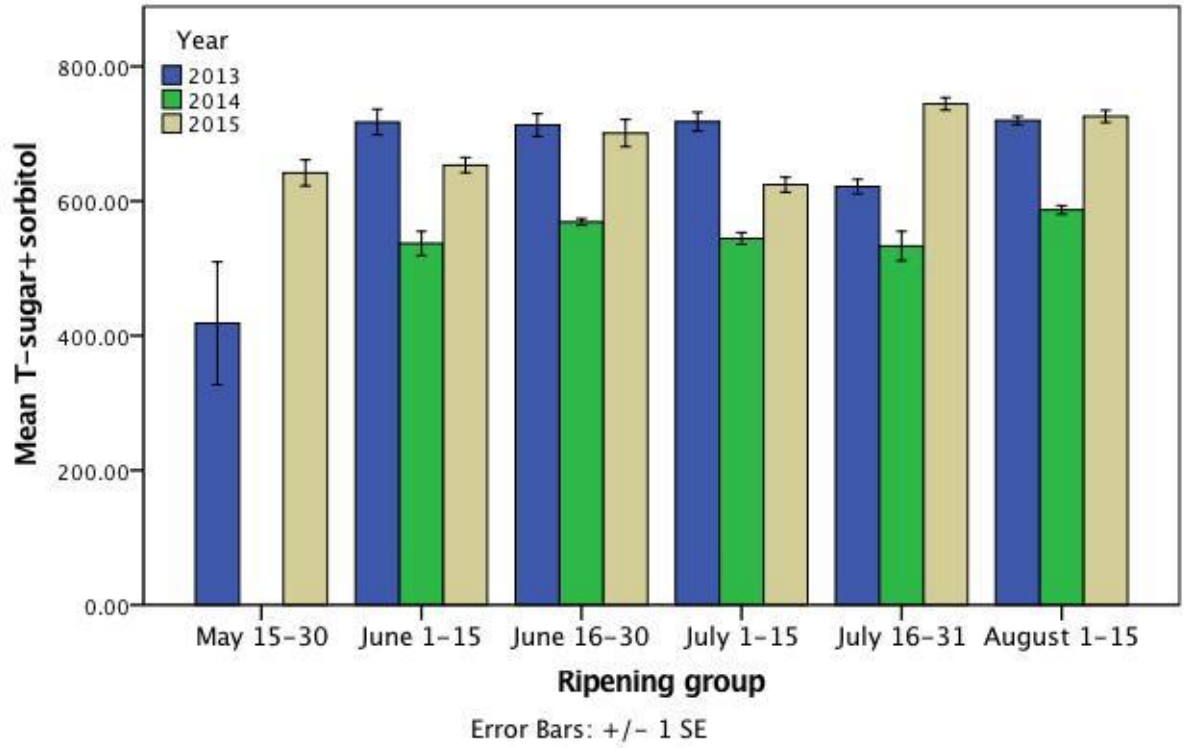


Fig. 2. Total sugar (sucrose, fructose, glucose and sugar alcohol, sorbitol) accumulation observed in different ripening groups. Average calculated over 2013-2015 experimental years.

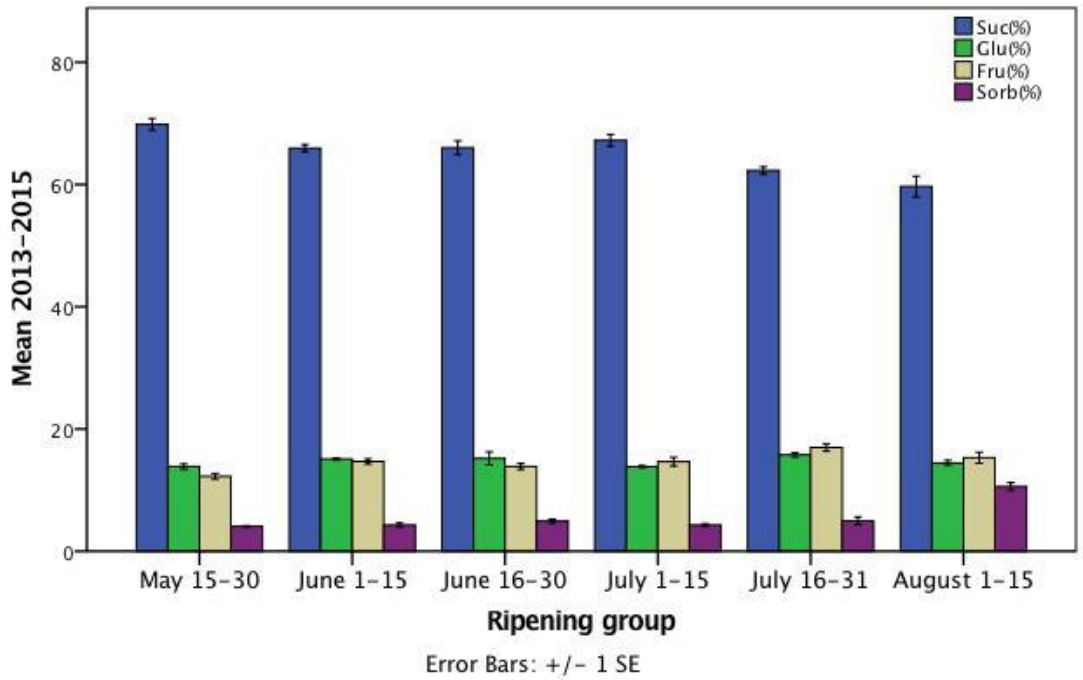


Fig. 3. Accumulation of individual sugars (Suc – sucrose; Fru – fructose; Glu – glucose) and sugar alcohol (Sorb – sorbitol) in peach varieties grown and marketed in South Carolina for different ripening groups. The mean values represent the average over 2013-2015.

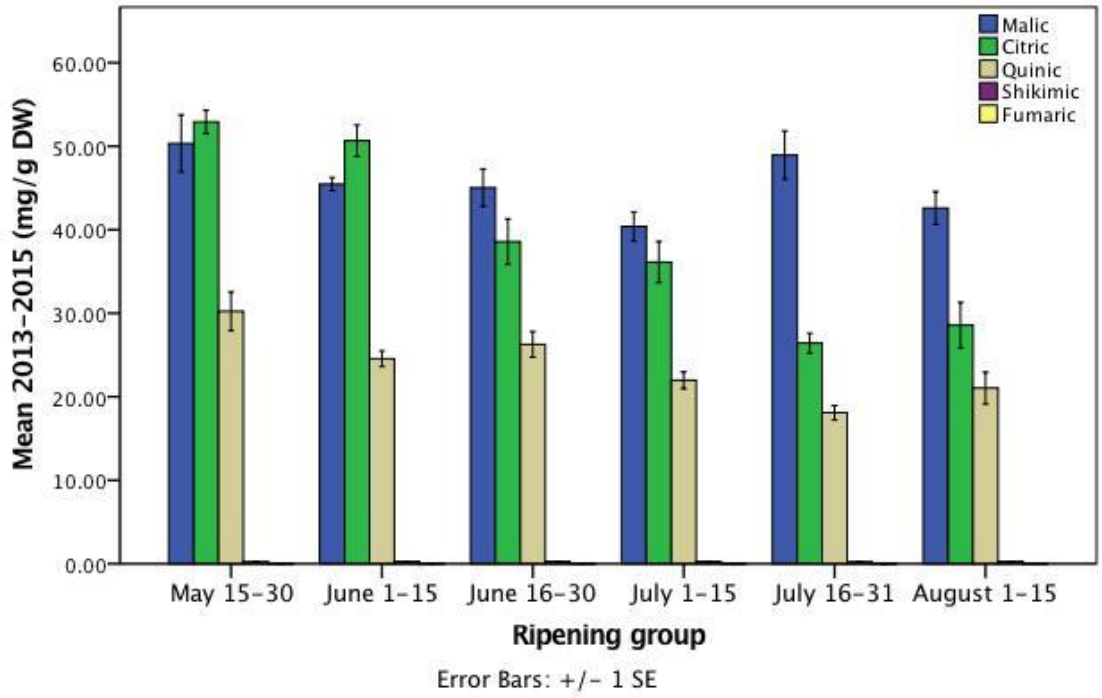


Fig. 4. Accumulation of individual acids (Malic, Citric, Quinic, Shikimic and Fumaric) in peach varieties grown and marketed in the South Carolina for different ripening groups. The mean values represent the average over 2013-2015.

- The predominant acid in peach fruit was Malic acid. However, individual acid analysis revealed higher accumulation of citric acid in the early ripening varieties, which might have contributed to more acidic taste in the early ripening season fruit (Fig. 4).

Table 1. Accumulation of phytonutritional compounds in peach varieties produced and marketed in South Carolina for different ripening seasons. Values averaged for varieties ripening in each specified ripening group for the 2013-2015 experimental years.

2013-2015	RAC (µg TEAA/g FW)	Total phenolics (mg GAE/100g FW)	Anthocyanins (mg C3GE/g FW)	Flavonoids (mg CE/100g FW)
May 15-31	371.99	10.07	5.78	16.83
June 1-15	469.78	18.67	5.54	11.96
June 16-30	660.44	29.13	7.17	17.28
July 1-15	663.94	45.83	9.03	19.77
July 16-31	672.16	48.16	9.54	16.90
August 1-15	933.34	38.94	16.49	25.39
Average	577.91	26.60	7.83	16.67

- Phytonutritional components in peach fruit were variety, ripening season and year dependent.
- Environmental conditions during ripening seasons were highly influential on the antioxidant capacity observed in the analyzed peach varieties.
- Peach varieties produced and marketed in South Carolina are a good source of health promoting compounds such as antioxidants, anthocyanins, flavonoids and total phenolics, as relayed in Table One.
- The highest nutritional content of all health promoting compounds in peach varieties grown in SC was observed in ‘Juneprince’ and ‘Flameprince’.
- Highest nutritional content and antioxidant activity in breeding germplasm was observed in heirloom varieties ‘Belle of Georgia’ and ‘Elberta’.
- Late ripening varieties accumulated more phytonutrients compared to early and mid-ripening varieties (Table One).
- Bi-parental mapping and genome wide association study (GWAS) revealed several regions in the peach genome associated with inheritance of fruit quality traits and accumulation of nutritional compounds and fruit quality traits.

Project Partners:

- Dr. Gregory Reighard: assisted in grower survey and provided advice in fruit quality data interpretation
- Asma Abdelghafar: graduate student conducted fruit quality and phytochemical analyses

Goals and Outcomes Achieved

The goals of this project were two-fold; to evaluate peach varieties currently grown and marketed in South Carolina and those used in the peach breeding program for fruit quality traits (size, weight, firmness, soluble solid concentration and titratable acidity) and phytonutrient content (antioxidant capacity, anthocyanins, flavonoids and total phenolics). This project was aimed to be able to increase the competitiveness of the South Carolina peach industry by developing new and improved specialty crop varieties with better fruit quality and nutritional value.

Sixteen varieties grown and marketed in SC and 527 accessions maintained in a *Prunus sp.* collection at Clemson University, representing peach germplasm and important parents used in the peach breeding program, were phenotyped for fruit quality and phytonutritional content. A total of 11,655 fruit quality and 5840 phytonutritional data points have been collected. Varieties and advanced selections with higher accumulation of nutritional compounds were observed and will be used in the breeding program. Information on fruit quality and nutritional properties of advanced selections and their suitability/adaptability to environmental conditions of the southeastern U.S. provides additional information to our growers as to what varieties/selections to plant. In addition, individual sugars/acids composition and phytonutritional information acquired on already grown varieties enable targeted marketing. A survey of thirty growers from SC and GA revealed the importance of incorporation of flavor in the newly developed peach varieties.

The long term goal of the project was to improve breeding efficiency for high quality peach varieties with enhanced phytonutrition composition by applying market assisted selection with association genetics. Collected fruit quality and phytonutritional data along with markers generated via genotyping by sequencing and data acquired with SSR markers (collected in previous project 12-25-B-1253) were used in bi-parental mapping and genome wide association study. Regions in the peach genome associated with accumulation of sugars, acids and nutritional compounds were revealed. These results will be applied to development of markers for marker assisted breeding (MAB), for improvement of fruit quality and nutritional composition of peach fruit in peach breeding program. MAB will help reduce time and cost of delivering new and improved peach varieties, improve breeding efficiency, and ensure delivery of new peach varieties with improved fruit quality and nutritional value that in turn should increase competitiveness of the South Carolina peach industry in a global market.

Comparison of actual accomplishments with the goals established for reporting period:

Activity	Goals	Accomplishments
Phenotyping – fruit quality and nutritional	10 varieties grown in SC and 300 varieties and advanced selections	16 varieties grown in SC, 527 varieties and advanced selections
Phenotyping –individual sugars and acids	16 varieties grown in SC and 50 varieties from breeding germplasm over 2 years (2014-2015)	Phenotyped 16 varieties over 3 years (2013-2015) and 60 varieties/selections from breeding germplasm over 2 years (2014-2015).

Grower survey	Growers representing 80% of peach acreage in South Carolina	Surveyed growers representing 80% of acreage in South Carolina and Georgia
Presentation of results	Presentation at local, regional and national meetings	Two presentations at Peach Industry Meeting organized at Clemson University in April 2014-2015. Seventeen and 15 growers representing 99% of peach industry in South Carolina and Georgia in attendance. One presentation at Southern Professional Fruit Workers Conference in Gainesville FL, in September 2016. No growers in attendance, however county agents from several states (SC, GA, TN, NJ, FL) were in attendance. Oral presentation at ASHS Atlanta, GA - 110 attendees. Attendees to these meetings are not necessary growers but they take this knowledge to growers. In addition, poster presentation at Eucarpia, European breeding conference, in Bologna, Italy – 140 attendees and International Horticultural Congress, Brisbane, Australia;

Beneficiaries

South Carolina growers and consumers as well as the peach breeding program are the main beneficiaries. Fruit quality and nutritional content data provide a valuable resource to the South Carolina peach industry in marketing their products to premium niche markets. It also provides additional facts to the consumers to help them in choosing healthy food that is pleasing to their senses and benefits their overall health. In addition, improved efficiency of the peach breeding program will ensure faster and more cost efficient delivery of peach varieties with the desired combination of traits.

At least 10 growers from SC and 5 growers from GA increased their knowledge about the nutritional quality and individual sugar and acid composition of the varieties they grow. Potential economic impact of the project is hard to estimate. Increased knowledge of the nutritional benefits that peach fruits provide to human body should increase sales and consumption.

Lessons Learned

1. The fruit sampling for phytonutritional analysis highly influenced the collected data. Variability observed between analyzed fruit within variety caused changes in sampling protocol. An improved protocol for sampling fruit flesh reduced sampling error and improved quality of the data. It also reduced the labor and cost associated with preparation of the fruit samples for phytonutritional analyses.
2. The non-destructive fruit maturity measurement and positive correlation between fruit maturity stage and fruit quality and phytonutritional content revealed that proper fruit maturity is required for achieving better quality and higher accumulation of health related compounds.

Contact Person

Dr. Ksenija Gasic, Clemson University, Department of Horticulture

864-656-3664

kgasic@clemson.edu

Project Title: Assisting Socially Disadvantaged Farmers to Produce Specialty Crops

Partner
United Farmers, USA

Summary
United Farmers USA (UFUSA) along with the Project Manager, Hezekiah Gibson and its staff would like to take this opportunity to thank the South Carolina Department of Agriculture for the opportunity to be of service and provide specialty crop educational workshops to the small disadvantaged, beginning farmers, veterans, unemployed individuals and youth in the 5th and 6th soil conservation districts in South Carolina not to exclude participants from districts 1,2,3,4, and 7 by providing outreach, education, hands-on training and mentorship. This project has been a continuation of efforts which began in 2012 to educate and train socially disadvantaged farmers, beginning farmers and youth. UFUSA also included veterans and unemployed individuals to give them an opportunity to change their vocations.

One of the unifying goals of the members of United Farmers, USA (UFUSA) is to pass knowledge about growing and producing food from the previous and current generations, to the younger generations of small, disadvantaged, and beginning farmers. There is a critical need to maintain and strengthen current levels of business management techniques among this demographic, so that by educating and training this population to produce specialty crops they may become cost saving and profitable farmers. An increased production of specialty crops can create crucial incomes for this population and the rural communities in South Carolina.

This project assisted United Farmers, USA to reach more than 200 persons in extremely rural areas of SC, and expand their individual knowledge about growing specialty crops so that they may lead more independent lives, both physically and financially.

United Farmers USA (UFUSA) was awarded a Specialty Crop Block Grant to assist socially disadvantaged farmers in the production of specialty crops over a one year period through outreach, education and training. UFUSA had the goal of impacting the lives of at least 200 socially disadvantaged farmers, beginning farmers and youth not excluding veterans and unemployed (SDFBFYVU) in the 5th and 6th soil and water conservation districts in SC. Farmers from other districts (1, 2, 3, 4 and 7) were not excluded from receiving the educational or hands on training and 55 would complete the training and receive a certificate.

Approach
This final report will show the progress that has been made since 2012 and the farmers we have influenced as well as the workshops and small group settings we have completed in 2014. We were very pleased and excited to see the participants' efforts to change from the way they did things in the past to convert to doing Specialty Crops.

UFUSA's staff produced and distributed 250 training manuals in specialty crops for the educational workshops. Mailed, emailed, and distributed by hand over 400 flyer/letters to persons and posted signs in the communities to bring awareness of the specialty crop meetings, workshops and farmer market. Two members travelled to various locations in districts 5 and 6 to locate, establish and set up the farmer market for the specialty crop producers to market their crops.

UFUSA has reached over 200 SDFBFYVU's over the course of one year (2013-2014) and made them aware of how to grow specialty crops and the benefits of growing specialty crops. Of the 200, seventy (70) participants wanted to be further educated on growing specialty crops, specifically vegetable crops. Sixty (60) of these seventy (70) participants went on to complete the additional courses we offered in specialty crop education, hands on training, refresher courses, and attended a small group setting on one or more session. UFUSA has hosted four (4) additional classes, three (3) in-field classes for hands on training, two (2) refresher classes and a farmers' market opening. Twenty six (26) farmer participants attended either one or more of the following conferences:

- SC Fruit, Vegetable, and Specialty Crop Growers Association Expo
- Minority Landowners Conference
- Southeast Regional Fruit and Vegetable Conference

Schedule of UFUSA Events/Activities Related to this Project:

Date(s)	*Primary Purpose*	*Conference/Workshop*	*Location*	*Attendance*
10/5/13	Specialty Crop Training	Workshop	Cheraw	59
10/12/13	Specialty Crop Training	Workshop	Hartsville	66
12/2-4/13	SC Fruit, Vegetable Expo	Conference	Myrtle Beach	6
12/5/13	In field training-Patrick Farm	Workshop	Blackville	3
12/7/13	In field training – Gibson Farm	Workshop	Paxville	16
12/21/13	Christmas Tree Farm Tour	Workshop	Paxville	14
1/4/14	Specialty Crop Training	Workshop	Paxville	12
1/9-12/14	SE Regional Fruit and Vegetable	Conference	Savannah, GA	4
3/8/14	Specialty Crop Refresher	Workshop	Paxville	45
4/24/14	Pesticide Training	Clemson Workshop	Orangeburg	3
5/1/14	In field training – Greenfield Farm	Workshop	Rembert	5
5/3/14	Specialty Crop Training	Workshop	Cheraw	15
5/24/14	Farmers Market Opening		Paxville	75

<u>Goals and Outcomes Achieved</u>

There were a total of 215 people who attended an educational workshop, 70 interested in participating in specialty crop production, and 60 of that completed the educational training on specialty crops. 42 had never been to an agricultural lesson, and 25 had not heard of specialty crops. When tests were compared from both pre- and post- workshops, the following results were obtained:

Of the sixty (60) participants that completed the Specialty Crop Educational Training, forty two (42) were farm producers or seasoned farmers, eighteen (18) were new and beginning farmers, veteran farmers or youth farmers 16 years or older.

Each participant learned how to collect and read soil samples, how to prepare the land for planting, seeding, watering; budgeting, marketing. Four farmers were named 'Farmers of the Year' in the 2014 Minority Landowners Magazine.

Those who attended the workshops, meetings and conferences said they gained more insight into being a specialty crop producer, have developed a network of farmers to refer to with questions, know where and who to go to for assistance and had the opportunity of visiting other farms. One young farmer stated "I can use a hoop house to grow the same or a different vegetable by rotating my crops each season" and other participants stated they received a better understanding of what specialty crops are and how conducive they are to marketing.

Five (5)% of the sixty (60) participants were able to sell their vegetables during the summer at the farmers market and at least four (4)% will be able to sell their specialty crops during the fall harvest season. Over the next 3-5 years the impact of these participants are projected to show a 25-30% increase in the production of specialty crops in the Fifth and Sixth Soil and Water Conservation Districts in SC. As they continue to meet in small support groups to share with one another they will become a community that work together to create healthy consumers from the produce grown in their communities.

Beneficiaries

The beneficiaries of this project include, but are not limited to, the 215 small, disadvantaged, beginning farmers, veterans, unemployed individuals and youth that were participants in the meetings. But the 60 persons that received certificates for completing the entire program will receive additional benefits for both themselves and their families, as they are fully prepared to grow, harvest and market vegetables, thus bringing additional health and wealth to themselves.

Lessons Learned

- Classroom workshops are important, but the program participants learned more from one-on-one on farm visits, and in the field trainings days.
- Most participants did not realize that so much work in soil preparation was needed to grow vegetables. Many have backgrounds in growing commodity crops, where soil fertility and structure is not as important.
- Outreach and ongoing support will be necessary to keep these new specialty crop growers encouraged, and engaged in their new vocations.

Contact Information

Mrs. Francis Dot Benton
Secretary, United Farmers USA
843-319-7212
bentondot@yahoo.com

Project Title: Improved Control of Powdery Mildew and Anthracnose on Watermelon in South Carolina

Partner: Clemson University, Dr. Anthony Keinath, Project Manager

Project Summary

This project was undertaken because of the widespread outbreak of anthracnose on watermelon in South Carolina during the 2013 growing season. Many new fungicides were registered for use on watermelon since the last outbreak of anthracnose in the late 1980s, but these fungicides had not been tested for efficacy against anthracnose. In addition, powdery mildew affects watermelon each year. Even though several effective powdery mildew fungicides were available, none of them had been tested on watermelon.

Four fungicides consistently controlled powdery mildew better than water or chlorothalonil applied every other week: Procure, Luna Experience, Quintec, and Torino alternated with Quintec. To manage anthracnose, Quadris Top, Tanos + mancozeb, Pristine, and Merivon, all rotated with mancozeb, controlled anthracnose as well as mancozeb applied alone. Bravo, Cabrio, Quadris, and Topsin M applied alone were as good as mancozeb applied alone. Fungicides applied to manage powdery mildew increased marketable weight and number of watermelon by 75% and 55%, respectively, compared to no fungicide. In two experiments with severe anthracnose on the fruit, the most effective fungicides increased marketable weight by 500%. Over 550 growers, agribusiness personnel, county Extension agents, and crop consultants have been trained in appropriate selection of fungicides for watermelons and in fungicide rotation to prevent fungicide resistance in cucurbit powdery mildew. Information from this project was also distributed in five publications.

Project Approach

In two experiments, 10 fungicides were applied weekly five times in 2014 and six times in 2015 to seedless watermelon to manage powdery mildew. In two additional experiments, 11 fungicides were applied in rotation with mancozeb six times or 13 fungicides were applied alone three times to manage anthracnose on seeded watermelon. Water was applied as the nontreated control in all experiments. Fruit were harvested, counted, and weighed one to three times in each experiment. In anthracnose experiments, fruit were graded according to USDA standards, and fruit with any anthracnose were counted and weighed separately. Data were analyzed using analysis of variance for mixed models, and treatment means were compared with Fisher's protected least significant difference test.

Goals and Outcomes Achieved

The measureable outcome for this project is the number of South Carolina melon growers who have been trained in the most appropriate fungicides to control powdery mildew and anthracnose. The goal is to train 100 growers. The performance measure is the number of watermelon and cantaloupe growers attending Extension programs where the topic is presented at the Watermelon and Vegetable Field Day held annually in July at Edisto REC, Blackville, SC, and the Southeastern Vegetable and Fruit Expo held annually in December in Myrtle Beach, SC. The benchmarks and targets are 75 growers trained at the Watermelon Field Day and 25 growers trained at the Expo.

As a result of this project, 558 growers, agribusiness personnel, county Extension agents, and crop consultants have been trained in appropriate selection of fungicides for watermelons and in fungicide rotation to prevent fungicide resistance in cucurbit powdery mildew. The following seven presentations were made to achieve this goal:

- July 10, 2014, at the Watermelon and Vegetable Field Day held at the Clemson University Edisto Research and Extension Center, Blackville, SC. Approximately 150 people attended, the majority of whom were watermelon growers.
- December 2, 2014, at the 29th Southeastern Vegetable and Fruit Expo 2014 Cucurbit Session in Myrtle Beach, SC. Approximately 80 watermelon growers from South Carolina, North Carolina, and other states attended. A summary was also published as: Keinath, A.P. 2014. Managing anthracnose and other cucurbit diseases: 2014 update. Southeast Vegetable & Fruit Expo Program, p. 36-37.
- February 18, 2015, Charleston, approximately 50 vegetable growers.
- March 12, 2015, Turbeville, SC, approximately 60 vegetable growers.
- July 9, 2015, at the Watermelon and Vegetable Field Day held at the Clemson University Edisto Research and Extension Center, Blackville, SC. Approximately 100 participants, the majority of whom were watermelon growers.
- December 8, 2015, watermelon growers in Bamberg and surrounding counties, 18 people attended.
- July 14, 2016, update on anthracnose, at the Watermelon and Vegetable Field Day held at the Clemson University Edisto Research and Extension Center, Blackville, SC. Approximately 100 participants.

Five articles were published:

- Keinath, A.P. 2015. Efficacy of fungicides against powdery mildew on watermelon caused by *Podosphaera xanthii.* Crop Prot. 75: 70-76.
- Keinath, A.P., DuBose, V.B., Conrad, C.D., and Rushton, M.C. 2015. Effectiveness of fungicides rotated with mancozeb against gummy stem blight and anthracnose on watermelon, 2014. Plant Dis. Manag. Rep. 9: VO74. Online publication. doi: 10.1094/PDMR09.
- Keinath, A.P., and DuBose, V.B. 2014. Evaluation of biological and conventional fungicides to control anthracnose on watermelon, 2013. Plant Dis. Manag. Rep. 8:V218. Online publication. doi: 10.194/PDMR08.
- Keinath, A.P., and DuBose, V.B. 2014. Evaluation of fungicides rotated with mancozeb to control anthracnose on watermelon, 2013. Plant Dis. Manag. Rep. 8:V220. Online publication. doi: 10.1094/PDMR08.
- Keinath, A.P., and DuBose, V.B. 2014. Evaluation of fungicides applied in alternation with Bravo for control of powdery mildew on watermelon, 2013. Plant Dis. Manag. Rep. 8:V221. Online publication. doi: 10.1094/PDMR08.

A second outcome is the number of fungicides that improve control of powdery mildew over and above the control provided by cholorthalonil, the baseline protectant. The performance measure is that the level of control will be statistically greater at a probability level of 95% than the control achieved with chlorothalonil alone. The achieved outcome is four fungicides: Procure, Luna Experience, Quintec, and two applications of Torino alternated with Quintec.

The third outcome is the number of fungicides that improve control of anthracnose over and above the control provided by mancozeb, the baseline protectant. The performance measure is that the level of control will be statistically greater at a probability level of 95% than the control achieved with mancozeb alone. No fungicides were better than mancozeb. Four fungicides rotated with mancozeb, Quadris Top, Tanos + mancozeb, Pristine, and Merivon controlled anthracnose as well as mancozeb applied alone. In

a second series of experiments, only one fungicide, Bravo, applied alone was as good as mancozeb. Three other fungicides, Cabiro, Quadris, and Topsin M were consistently better than water but not as good as mancozeb.

Beneficiaries

The direct beneficiaries of this project are the growers, agribusiness personnel, county Extension agents, and crop consultants who have been trained in how to choose fungicides to manage anthracnose and powdery mildew. Other beneficiaries are agrichemical businesses who supply fungicides to watermelon growers, since if they know which fungicides growers will be using, they can stock their inventories on products to be sold. Other beneficiaries are some of the owners of the 651 watermelon farms in South Carolina, as reported in the 2012 Census of Agriculture.

There were 558 beneficiaries on this project (see page 3 of the final report). Based on a 75% yield increase in watermelon sprayed for powdery mildew and 7,700 acres of watermelon in South Carolina in 2016, if 50% of the acres had powdery mildew, and seedless watermelons were worth $0.15/lb, the economic impact of the powdery mildew portion of this project was estimated to $5.7 million. Based on a 273% increase in watermelon sprayed for anthracnose and 7,700 acres of watermelon in South Carolina in 2016, if 50% of the acres had anthracnose, and seedless watermelons were worth $0.14/lb, the economic impact of the anthracnose portion of the project was estimated to be $5.1 million. The total potential economic impact of this project was an average of $5.4 million, since watermelons normally have either powdery mildew or anthracnose, but not both diseases.

Lessons Learned

Seedless watermelon was more sensitive to yield loss due to powdery mildew than expected, based on previous fungicide experiments with seeded watermelon. Anthracnose can infect a large percentage of watermelon fruit if it is not controlled adequately on the leaves and vines. In order to evaluate the effects of anthracnose, it may be necessary to manage powdery mildew and gummy stem blight with fungicides specifically active against these two diseases.

Contact Information

Dr. Anthony P. Keinath, Vegetable Pathologist
Clemson University Coastal REC
843.402.5390
tknth@clemson.edu

Project Title: Organic Farming Conservation Outreach Project

Partner
Carolina Farm Stewardship Association

Summary
In the spring of 2011, CFSA initiated an Organic Produce Market Survey (OPMS), funded by the NCDA Specialty Crop Block Grant program, for the purpose of enhancing the competitiveness of North and South Carolina specialty-crop producers who were then entering the expanding market for organic fruits and vegetables. The results of this survey showed a considerable gap in the Carolinas between the demand for organic produce items commonly grown in the Carolinas and what Carolina growers are currently supplying. The estimated value of that gap is over seven million dollars a year. The Organic Farming Conservation Outreach Program (OFCOP) improved the competitiveness of South Carolina specialty crop producers seeking to take advantage of the high-value market for organic produce by providing them with the tools they needed to transition to certified organic production.

Federal cost share programs for adopting organic farming practices, such as the Natural Resources Conservation Service Environmental Quality Incentive Program Organic Initiative, (NRCS EQIP-OI) provide opportunities for South Carolina specialty crop producers to increase their competitiveness in the organic food market. NRCS provides cost-share assistance to farmers to retain professional help from NRCS-certified Technical Service Providers (TSP) to develop conservation activity plans. Conservation Activity Plans Supporting Organic Transition (CAP 138), Nutrient Management Plans (CAP 104), and Pollinator Habitat Plans (CAP 146) serve as basic building blocks of the organic system plan required for certification by the National Organic Program. In order to receive cost-share assistance, farmers may only hire TSPs certified by NRCS to complete these plans.

The goals of this project were to increase the number of SC producers transitioning to certified organic production and increase access and utilization by organic/transitioning producers of SC NRCS EQIP-OI cost share programs.

Approach
In order to do this we retained on staff a certified Technical Service Provider (TSP) to write Conservation Activity Plans Supporting Organic Transition (CAP 138) and Nutrient Management (CAP 104), provided direct consulting to producers who were seeking USDA Organic Certification, and provided workshops on organic production practices. In order to meet these goals we:

- Expanded CFSA's TSP certification to include Nutrient Management (CAP 114).
- Wrote Conservation Activity Plans Supporting Organic Transition (CAP 138) and Nutrient Management Plans.
- Provided one-on-one consultation to producers seeking USDA organic certification.
- Provided technical assistance to specialty crop growers on the EQIP-OI program and organic transition and production practices.

Goals and Outcomes Achieved

Goal 1: Increase the number of SC producers transitioning to organic production by providing direct consulting to producers who were seeking USDA Organic Certification and providing workshops on organic production practices.

CFSA's organic certification assistance program was promoted through direct emails, follow up emails with producers that previously expressed interest, continued interaction/referral requests from Clemson's Organic Certification Program, and at tabling and speaking events. We also promoted the program through CFSA's and Lowcountry Local First's listservs as well as through our monthly electronic newsletter.

1. Provided technical assistance to 14 transitioning or certified organic specialty crop producers, and one-on-one consultations to sixteen producers seeking USDA organic certification. We worked with the following farmers:
    - Avril Fabian, Dirtwork Incubator Farm, John's Island
    - James Marzluff, Dirtwork Incubator Farm, John's Island
    - Riverwood Holistic Farm, Kingstree
    - Cedar Knoll Farm, Belton
    - Jatun Killa Farm, Eastover
    - Mary Conner, Bluffton
    - John Lloyd, Charleston
    - Cedar Knoll Farm, Belton
    - Fishel Payne, Hartville
    - Thicketty Mountain Farm, Cowpens
    - J&C Cockfield Farms, Coward
    - Pompey's Rest, Ware Shoals
    - Garlock Farm, Aiken
    - Behr Farm, Harleyville
    - Hilton Farm, Sumter
    - Rees Arant Farm, Pagelan

CFSA staff also provided three workshops (listed below) for specialty crop producers on certified organic production practices and transitioning to certified organic production, which included information on CFSA-developed tools for organic production and transitioning to sixty three farmers, extension agents, and government agriculture agency representatives.

1. *Organic Certification Intensive:* A full day workshop intended for specialty crop growers (14 attendees) considering organic certification. Topics covered included: the requirements for certification, developing an organic system plan, establishing appropriate recordkeeping practices, preparing for an inspection, differentiating allowable vs. prohibited inputs and interacting with certifying agents.
2. *Transitioning to Organic:* A 90 minute workshop focused on the barriers that specialty crop grower's face in the transitional stage to organic and how to overcome them successfully. Fourteen (14) participants attended this workshop.
3. *Is your farm making money?:* A 90 minute workshop that introduced 35 participating specialty crop growers to Veggie Compass, an end of the year financial record keeping program, and how to use that financial information to develop organic enterprise budgets for specialty crops.

As a result of this program, eight specialty crop producers were beginning the transition process in 2014, and two got certified. Eight program participants are planning on starting the transition process in 2015.

Goal 2: Increase access and utilization by organic/transitioning producers of NRCS EQIP-OI cost share programs by offering NRCS-certified Technical Services to producers.

CFSA's Conservation Activity Planning program and NRCS's EQIP-OI program were both promoted through direct emails, CFSA's list serves, monthly electronic newsletters, and at tabling and speaking events. A sample CAP 138 Plan was published on our website in order to promote the program.

CFSA's Farm Services Coordinator submitted a Nutrient Management Planning portfolio, including development of two sample CAP 104 Plans, to SC NRCS in order to become certified to write CAP 104 Plans. He was certified in July.

One CAP 104 Plan was written for City Roots Farm, Lake City, and seven CAP 138 Plans were written for:

- Wabi Sabi Farm, Cordesville
- J&C Cockfield, coward
- Weatherly Thomas, Timmonsville
- City Roots Farm, Columbia
- Lisa Rees, Pageland
- Mark Harouff, Belton
- Bobby Behr, Harleyville

While demand for CAP 138 and 104 Plans is increasing in SC, our goal of writing twenty in 2014 was ambitious. Because we were concerned that we would not meet that goal, we were approved to expand our activities in order to conduct site visits in order to provide specialty crop growers with information regarding NRCS EQIP-OI opportunities specific to their farm. This enabled us to meet our goal of increasing access and utilization of the NRCS EQIP-OI cost share program by organic and transitioning producers by either writing a CAP Plan or conducting a site visit to farmers interested in the

EQIP-OI program. CFSA staff provided on-farm EQIP-OI Conservation Planning technical services to the following specialty crop producers:

- Happy Berry, York
- Ben Williamson, Darlington
- Johnny Hilton, Sumner
- Chris Sermons, Ware Shoals
- Chattooga Belle, Long Creek
- Parker Coffin, Lake City
- Holly Welch/Margie Levine, Clinton
- Thomas Mayhew, Chester
- Ben and Carol Williams, Georgetown
- Maria Wilson, Greenwood
- Tim Askew, Abbeville
- Sharon Helms, Hopkins

Beneficiaries

Direct beneficiaries of this project were specialty crop producers who received technical information about the EQIP-OI program, and specialty crop producers and NRCS district conservationists who received technical assistance about organic production practices. Beneficiaries served are listed below:

Type of Information Dissemination	**Number of Beneficiaries**
Viewed Online Resources	1135[1]
Received One-on-One Organic Transition Consultation	16
Received a CAP Plan	8
Received EQIP-OI Conservation Planning Technical Services	11
Received organic transition and/or organic production technical services	14
Attended a Workshop (Producers)	63

[1]Number of views of online resources contains all unique views, not solely those from SC. We are unable to differentiate views by state.

Lessons Learned

Seasonality plays a big role in when producers focus on pursuing organic certification for their operations. In the beginning and end of the calendar year, when days are shorter and there are fewer time constraints that come with the peak growing season, producers have a greater interest in asking questions about and beginning the organic certification process. Inquiries are extremely low during the summer months despite reaching out to our allies for help in identifying likely candidates for assistance and continued promotion of our consulting services. Conversations with staff at Clemson's Organic Certification Program this fall reinforced our own experiences in working with new and transitioning organic producers in SC; there have been fewer inquires this season than in years past. Following previous trends, producer communication was heaviest in the late fall and early spring of the year. This can be challenging when balancing workload, as these inquiries take priority for quick, thorough responses. However, we now know that this work is seasonal and can develop our annual work plans based on this knowledge.

Producers continue to identify the costs of certification as an obstacle in getting certified. This could be due in part to the interruption of the USDA organic certification cost share program funded through the Farm Bill. With the completion of the new Farm Bill and re-establishment of this valuable program,

CFSA actively worked to let producers know that the cost share program is now making it more economically feasible to obtain certification.

Meeting the requirements for certifying as a TSP to write CAP 146 Plans (Pollinator Habitat Enhancement) was an obstacle and we were not able to become certified to author them. NRCS requires applicants to have one year of field experience in planning, developing, implementing and managing conservation plots for beneficial and pollinating insect species. Based on communications with the SC NRCS TSP Coordinator, CFSA's TSP will be able to certify to write CAP 146 Plans in 2015, after one years' experience writing CAP 138 Plans (Conservation Plans Supporting Organic Transition) that include a section on NRCS's Conservation Cover (327) Practice. We will work with the SC NRCS Wildlife Biologist to include Conservation Cover in CAP 138 Plans.

Producers must apply for a contract with NRCS before CFSA can begin writing CAP Plans and we have experienced some frustration with the number of applicants for CAP services. This is due, in part, to the short application window (batching period) for applications for EQIP-OI cost share assistance (includes CAPs) in SC. For example, the EQIP application window in SC was 'open' for approximately six weeks ending 12/19/2014. Any producer finding out about EQIP CAP opportunities after the batching period is closed has to wait another year for their application to be reviewed.

For 2014, we only received eight completed NRCS contracts. Because we anticipated an insufficient number of NRCS contracts, an amendment was proposed to modify the deliverables to reflect a combination of CAP Plans and on-farm EQIP OI Conservation Planning technical services. The site visits were focused on providing producers with an concerns and onsite farm evaluation of resource identification of NRCS EQIP OI conservation practices to ameliorate those concerns. Because of the low demand in CAP plans from SC specialty crop growers, we revised our expectations for the next round of OFCOP to ten plans per year in SC.

The SC NRCS state staff elected not to include any organic farming principles and practices in annual statewide training events. Access to local NRCS staff through those training sessions would have provided greater outreach to SC producers who might be thinking about transitioning to certified organic production. It would have also provided for a better marketing program for CFSA's EQIP OI services had the SC NRCS staff taken a more active role in communicating the availability of our program to producers.

Contact Person
Karen McSwain
828-423-2463
Karen@carolinafarmstewards.org

Additional Information
CFSA's online resources:

- Organic Certification and Production Consulting
- Conversation Activity Plan Consulting
- Sample CAP 138 Plan
- Applying for the EQIP-OI
- EQIP Organic Initiative Conservation Practices for your Farm

Project Title: Dirt Works

Project Partner
Lowcountry Local First

Project Summary
Lowcountry Local First's (LLF) Growing New Farmers Incubator Program (GNFIP) utilized a three-phase strategy of apprenticeship, farm incubation, and land-linking services to cultivate future producers of specialty crops in South Carolina. The **Dirt Works Incubator Farm** was launched as the second phase of GNFIP to provide farm business incubation, infrastructure, and mentorship for apprentice program graduates. The purpose of this project was to financially support Dirt Works, thus insuring the continued growth, development and replication of this program in the Lowcountry, as well as across the state. Funds were utilized to provide staff-support to implement the program expansion and curriculum development; mentorship for the apprentices; and to cover the cost of providing statewide consulting to partner organizations.

The project builds off of previous SCBGP funding by utilizing the momentum created by the awareness, program visibility and initial structure created during our "Farm Fresh Food" campaign and through the continued development of the apprenticeship program and specialty crop producer training in "Growing New Farmer Incubator Project". During these periods, an incredible amount of awareness was raised about the importance of specialty crop in the Lowcountry as well as the market opportunities available for specialty crop producers. This awareness combined with the support for the original courses for the Growing New Farmers program provided a strong foundation for continued growth in the program.

A 2012 survey in Charleston County, SC demonstrated that 98.4% of respondents wanted to buy fresh, locally produced foods. At that time, only a small percentage of this demand was being met by local farmers, which left an incredible market opportunity for new and/or expanding farms. Farmers of all sizes and stages were striving to meet consumer demand despite challenges from the weather, increased food safety regulations, and ongoing rising input costs. Parallel to production, new farmers must also utilize sound business practices, creative marketing strategies, and diverse sales outlets to gain access to competitive markets.

The purpose of this project was to expand the Growing New Farmer Incubator Program to include Dirt Works, a specialty crop incubator Farm, located on Johns Island, SC. Funds were used to ensure that the existing programs would continue to succeed while also working towards developing a curriculum for the teaching plot, guest lectures, and additional training opportunities for the apprentices. LLF Staff time was also allocated to work directly with established statewide partners who have demonstrated the capacity to launch apprentice programs in their areas of the state.

The Dirt Works project activities executed from Specialty Crop Block Grant Agreement 12-25-B-1695 funds were solely used to promote the education, production, and marketing of locally grown specialty crops. Funds directly supported apprentices and incubated farmers either operating or working on specialty crop farms.

Project Approach
The following activities relating to the Dirt Works Incubator Farm project took place during the 2014 calendar year:

- The Mentor Farmer, Rita Bachmann, was contracted to provide ongoing one-on-one assistance with the production, marketing and business teachings for the Dirt Works apprentices. (January)
- Meetings were held with each apprentice to determine their business timeline, production schedule, financial planning, and land criteria. This process helped to ensure the new growers were on target for incubation at Dirt Works, and capable of operating successful operations once independent. (February)
- Curriculum for the certificate program was researched and developed. Core concepts were selected for the apprentice program in the spring to provide structured learning both in classroom and at the teaching plot at Dirt Works. (February)
- The Apprentice application cycle ended in March; interviews were held using the application as a framework. Each candidate's commitment to farming, previous experience, expectations, and goals to ensure high retention and success in new farmer creation was evaluated. The interviews took place in March, and later that month, the Apprentice program began.
- The Apprentice Orientation was geared so that participants in the Dirt Works program would have a clear and solid understanding of the commitment, expectations, timelines and skills to be learned during the year. Each Apprentice signed a contract, competency spreadsheets, expectations check-list, and filled out forms for medical information. (March)
- The Sustainable Agriculture Course began in late March. The course provided information on the challenges of producing specialty crops. The Apprentices learned basic horticultural science concepts to increase their success as farmers, had opportunities to gain hands-on and visually based learning opportunities, all while building a strong peer network and support system. (March – May)
- Post course, the Apprentices experienced their Incubation season at Dirt Works. One-on-one meetings and trainings were held between the Mentor Farmer and each Apprentice during the growing season. Partner farms and organizations were consulted on best practices and strategies based on their existing site and resources. (May-September)
- Exit interviews were held by LLF staff with the Mentor Farmer and each Apprentice, giving an opportunity for them to provide feedback, and allowing for additional individuals services as well as any needs for future program changes. Program evaluation data was compiled and evaluated to determine the percentage of satisfaction, and competency of subjects. (August – September)
- The Farm Business Course began in September. This course provided information exclusively on specialty crop production. The participants were to learn how to start and run a successful specialty crop growing operation, by gaining a firm understanding of basic business concepts. Final business plans were required to receive certification upon completion. (September - November)
- Workdays and Field Trips to neighboring operations enabled the Apprentices to have an opportunity to gain hands-on learning. (September – November)
- End of year meetings with the Mentor Farmer, each Apprentice, and staff from LLF took place to assess the next steps and future planning, determine their business timeline, financial planning, evaluate potential funding/loan opportunities and to begin setting up land match interviews. (November)
- Program evaluation, curriculum efficacy, apprentice competency, program trainings were reviewed by LLF staff. Plans for changes in 2015 were discussed and made. (December)

The program had thirteen (13) mentor famers participate in the project in 2014. Mentor farmers include a variety of specialty crop producers with varying degrees of expertise, production methods, and distribution channels. All of our mentor farmer's production methods utilize organic farming practices including, but not limited to: companion planting, cover cropping, crop rotation, soil building, and Integrated Pest Management. Mentorship includes facilitated experience in these practices along with crop planning, business planning, marketing, distribution, and networking. Mentor farmers and apprentices are matched according to participant interest and farmer expertise. Competencies are assessed pre and post-program completion. Both parties complete initial goal setting and progress is assessed mid-season, as well as upon completion of the program.

The following are examples of the influences of mentor farmers within the Lowcountry Local First programs:

- Rosebank Farms is a 20+ year old farm with over 60 acres in production that specializes in heirloom vegetable and fruit production and distributes through CSA, farm stand, and wholesale channels. Farmer Sidi Limehouse has been a mentor since 2010.
- Middleton Place Organic Farm is a one-acre USDA certified organic farm situated on a 300+ year old plantation that produces fruits and vegetables for use in their on-site restaurant and also provides educational experiences to patrons.
- Joseph Fields Farms is one of the oldest USDA certified organic farms in South Carolina and utilizes over 50 acres to produce fruits and vegetables for farmers markets, on-site sales, and wholesale distribution. Joseph Fields has been a Lowcountry Local First farm mentor since 2010.
- Spade and Clover Farms is a Dirt Works Incubator Farm is in its' second year of production that specializes in Asian root and rhizome crops, as well as other vegetables, and is run by a former Dirt Works Growing New Farmers participant who apprentices with Joseph Fields Farm. Their distribution includes farmers markets, restaurants, and wholesale channels.
- Holy City Farms is a hydroponic greenhouse operation that specializes in heirloom tomato production. Their distribution is through farmers markets, restaurants, and wholesale.
- The Green Heart Project is a farm-to-school program that utilizes urban farms to produce fruits and vegetables for school lunch programming as well as distribution to local restaurants. The Director of the program is a graduate of the 2010 Growing New Farmers Program.

Goals and Outcomes Achieved

GOAL 1. Train new and beginning farmers in Sustainable Agriculture and Farm Business practices through an 8-week and 10-week courses and 3 to 5 hands-on field trips.

- Performance Measure: Enrollment of 12 apprentices
- Benchmark: Attendance and participation in coursework, engagement with guest speakers, and field trips.
- Target: Graduation from courses and increased competency in core fundamentals. Sustainable agriculture fundamentals include soil science, fertility, plant science, integrated pest and disease management, and whole farm management. Farm Business course includes market research, concept development, business plan, marketing, loans, and management.
- Measurement: Attendance, Exit Survey to determine if core concepts were learned.
- Surveys indicated that 100% of participants felt the program met their expectations "significantly", of the 17 total categories participants had an overall 86% "significant" increase in competency, and top future markets selected were wholesale, farmers market, and farm stand.

GOAL 2. Provide mentorship for new and beginning farmers by pairing existing farmers with qualified Apprentices and hiring Mentor Farmer for Incubated Farmers.

- Performance Measure: Apprentices would be paired with mentor farmers based on interest and skill sets, and attend scheduled workdays and trainings. Mentor Farmer is contracted and works with incubated farmers.
- Benchmark: Mentor Farmer work with Apprentices between 8-40 hours a week and dedicate a minimum of ¼ of time conducting one-on-one trainings. Mentor spends 2 days a week on incubator farm working directly with Apprentices.
- Target: Apprentices receive hands-on training from mentors, one-on-one feedback and directed learning, and competency in the completion of core farm skills. Incubated farmers receive one-on-one assistance with production, marketing, and business issues.
- Measurement: Interviews, check-ins, competency spreadsheets, and exit survey/interviews will demonstrate the percentage learned, hours spent, and completion of hours.

The 13 mentor farmers were paired with apprentices based on experience, goals and personality compatibility. At the end of the year, 100% of year-end year survey responses indicated that the program met their expectations. Apprentice exit interviews indicate a 35% average increase in fruit and vegetable production competencies including, fertility and soil management, bed and field preparation, plant care and culture, weed management, pest and disease management, green house management, irrigation, harvest, post-harvest, equipment use, farm design/management, marketing and labor management. They also indicated 100% significant increase in understanding of local farms in the Lowcountry, local farming resources, basic farm operations, overall knowledge of technical, economic, and logistical aspects of farming, types of market opportunities in the Lowcountry, and sales and marketing. Knowledge in all other areas increased somewhat to significantly. When indicating which markets are of particular interest 86% indicated farmer's market and farm stands, 71% indicated wholesale, 43% indicated schools and restaurants; all areas in which the mentorship was directly provided.

Of these mentor famers 8 (62%)have committed to being mentors in successive program years with two of the remaining five no longer farm due to non-farming related factors. One apprentice that worked with the specialty crop farm "Compost in My Shoe" continued his career with this farm, and is now a business partner in the company as it transitions out of incubation. Another apprentice operates an urban farm in North Charleston that focuses on working with at-risk youth and enabling this demographic to make sales at the local farmers market. Two apprentices have continued success within a value-added business making pies and salsa from locally grown specialty crops, and each cite their experiences in the LLF program as having been instrumental in their trajectory and successes therein.

A mentor farmer was hired for the program and provided 6 Dirt Works farmers (and their staff of 5) with support in both production and business. The mentor farmer worked with program participants to help set goals, determine production needs, assist in securing markets and connect farmers with business mentors. Each farmer has a specific work plan that has been developed with goals set for each year. The mentor farmers aided in increasing communication between farmers and one another as well as with program staff to ensure each farmers needs are being met.

GOAL 3. Create a curriculum for new and beginning farmers at the Dirt Works Incubator Farm.

- Performance Measure: Growing New Farmers Program will have a seasonally focused, skills based curriculum utilizing the facilities at the Dirt Works Incubator Farm that increases apprentice competency and networking in addition to existing training and coursework.

- Benchmark: Existing curriculums can be studied, practiced, and evaluated. Spring curriculum can be developed and evaluated to inform fall curriculum needs.
- Target: Final curriculum is created and tested to be utilized by all apprentices and interested specialty crop producers.
- Measurement: Curriculum development and implementation. Final exit survey questions specific to curriculum.

The curriculum was developed to include 22 chapters on all aspects of a farming business. Chapters include:Tools Introduction, History of Agriculture and Food, Production Techniques, Soil Science and Cover Crops, Composting, Plant Physiology, Irrigation, Direct Seeding and Transplanting, Weed Management, Pest Management, Disease Management, Greenhouse and Seed Starting Basics, Sales (CSA, Farmers Markets, Wholesale), Livestock, Food Safety and Postharvest Handling, Farm Records, Organic Certification, Crop Planning and Rotation, Budget and Financial Records, Business Planning, Marketing and Season Extension. Each chapter includes corresponding outlines, presentations, resource links (print and video), and handouts. The curriculum was developed to correspond with seasonality and to support practical application during field days at Dirt Works Incubator Farm. Documents and delivery are periodically revised to reflect current trends and practices in sustainable agriculture. Initially assessed competencies, year-end reflections, and areas of interest expressed have also informed revisions.

GOAL 4. Consult statewide partner organizations in the replication of the apprenticeship program.

- Performance Measure: Statewide partner organizations are provided one-on-one and group training opportunities to understand fundamentals of apprenticeship and incubation as well as learning best practices. Partners will receive one-on-one consultation to assist in the tailor of the program to meet area specific needs.
    - Lowcountry Local First consulted with Clemson CIED at Sandhills Extension Station on new farmers training, Catawba Local Food Council, and the Pee Dee local foods council. Additionally, staff presented the program model at the Carolina Farm Stewardship Association Conference, the National Women in Agriculture Risk Management Conference and the SC Farm Bureau Quarterly Meeting.
- Benchmark: Project partners are identified, training materials are finalized, meetings scheduled, and training organized.
- Target: At least 6 statewide partners receive detailed information on replication of Growing New Farmers Incubator Project and 3 statewide partners work one-on-one with LLF to develop a program.
- Measurement: Meeting and training implementation, feedback from partners on program development.

GOAL 5. Develop framework for certificate program to be utilized statewide.

- Performance Measure: Existing certificate program examples are identified, studied, and evaluated as models. Current demand and target population is identified. Local and state partners are identified. Core concepts and curriculum are established. Foundation is in place to launch program as funding is available.
- Benchmark: Current demand and target population is identified and selected. Certificate programs are identified and framework is laid to enable ease in project partner selection.
- Target: Create solid foundation for the launch of a model certificate program for individuals interested in small sustainable farming methods.

- Measurement: Sample program's materials, curriculum, and partner agencies identified. Survey of interest among current and past program participants.

Lowcountry Local First sought out ideal program examples (Central Carolina Technical College and Rogue Farm Corps), utilized existing frameworks and adapted materials to ensure relevancy in hot and humid climates while adding materials for business focused training. Staff reached out to existing programs including the Orangeburg Technical College to ensure compatibility. The program was updated to ensure it qualified for Continuing Education Units and currently offers participants 35 continuing education units through the College of Charleston. Potential hosts identified to ensure program materials are shared throughout the state include the peer groups Catawba Local Foods Coalition, Pee Dee Clemson Extension Services, Greenville Technical College and Clemson Sandhills REC. Challenges noted by LLF staff include the need for video capabilities for guest speakers, so that webinars and video taught workshops may be more incorporated into the syllabus. There is also a need for a resource guide that includes agencies, organizations, grants and agricultural support businesses. The challenge faced by hosts interested is using the curriculum is that there are often gaps in knowledge or capacity to facilitate the trainings because hosts must have base of experiences mentors, speakers or staff able to cover topics.

Beneficiaries

The beneficiaries included 32-specialty crop producers who were directly impacted by the project. The train the trainer aspects included the following number of agents that work with specialty crop producers:

- Consulted with Clemson CIED at Sandhills on new farmer training (5), Catawba Local Food Council (4), and the Pee Dee local foods council (2).
- The program model was presented at the Carolina Farm Stewardship Association Conference (32), the National Women in Agriculture Risk Management Conference (22) and the SC Farm Bureau Quarterly Meeting (50+)

The "Dirt Works" project included direct access to job training for 13 aspiring specialty crop producers, paid work placement positions for these same 13 aspiring specialty crop producers, mentorship support and facilitation for 19 existing specialty crop producers, and access to training materials and consulting support for 115 professionals in the specialty crop industry.

Over the duration of this project, consulted partners have begun the launch of a farm incubator in Columbia, SC as well as a Certificate in Sustainable Agriculture program at Greenville Technical College. Both of these programs will increase access to resources and job training for specialty crop producers across the state.

Lessons Learned

- Participant feedback indicated that participants wanted more time working on the farm as well as more one-on-one time with staff.
- Program was redeveloped to included 10-month long integrated curriculum utilizing content from both the Sustainable Agriculture course and Farm Business Course as well as outside resources. Changes in program schedule created challenges for some participants. Program started with 13 participants and due to conflicts in employment and financial burden the number has dropped to 7.
- Apprentices indicated interest in having access to more than one mentor.

- Mentors indicated the desire to have input on the selection and placement process.
- Securing mentors financially able to pay apprentices was challenging but achieved.
- Program curriculum was adopted but needed continued development during the season to adjust content based on participant feedback. Curriculum will have one additional update beyond the scope of the grant to ensure it can meet the requirements of an accredited program.
- Partners indicated concerns regarding financial capacity in launching programs as well as challenges in developing a collaborative farmer environment.
- Consultations conducted with program partners but the capacity of partners to implement programs is greatly dependent on funding therefore the implementation timeline is unknown.
- Evaluation of program revealed some minor changes necessary in the curriculum to ensure it can fit with accredited university.

Contact Information
Ms. Jamee Haley
Executive Director, Lowcountry Local First
843-740-5444
jamee@lowcountrylocalfirst.org

Additional Information
Apprentice Survey Results:

Results from 2014 Dirt Works Apprentice Surveys

Question:	Responses:			Percent Increased:
	yes	no	somewhat	
In general, did the incubator program meet your expectations?	7	0	0	100%
How much has the apprenticeship increased your understanding of the following?	None	Somewhat	Significantly	
Local farms in the Lowcountry (farmers, locations, products)	0	0	7	100%
Local farming resources (support agencies, websites, etc.)	0	0	7	100%
Basic farm operations (what components are needed to make a farm a "working" farm, such as watering infrastructure, record keeping, financial planning, washing/packing/cold storage, etc.)	0	0	7	100%
Types of agricultural products grown in the Lowcountry	0	1	6	86%
Types of farming methods used in the Lowcountry	0	1	6	86%
Types of market opportunities for farmers in the Lowcountry	0	0	7	100%
Emergence of potential markets in the Lowcountry	0	1	6	86%
Cultivation and production	0	2	5	71%
Pest management and Disease	0	3	4	57%
Harvesting/packing	0	1	6	86%
Sales/Marketing	0	0	7	100%
Distribution/delivery	0	2	5	71%
Farm business / financial planning	0	1	6	86%
Common challenges facing farmers	0	1	6	86%
Strategies for addressing challenges in farming	0	2	5	71%
Career opportunities in arming and farm related organizations	0	0	5	71%
Overall knowledge of the technical, economic, ad logistical aspect of farming	0	0	7	100%

Which of the following markets is of most interest to you, given your experiences in the program? (Circle all that apply)	Interest of market:	
Schools	3	43%
Restaurants	3	43%
CSA	2	29%
Farmer's market	6	86%
Farm stand	6	86%
Wholesale	5	71%
Institutional sales	1	14%

Supporting Plant and Flower Shows through the use of Media Advertising

Partner Organization
South Carolina Department of Agriculture, Marketing Division

Project Summary
The purpose of this project was to enable promotional support for the six plant and flower festivals held at the three SCDA Farmers Market facilities during the 2014 calendar year. These markets are located in Columbia, Florence and Greenville. There are two shows at each market – one in the spring, and one in fall. The ongoing goal is the increase of direct sales of locally grown ornamental and edible plants at these shows through the attraction of more customers. The project provided for new ad materials to showcase the festivals, including radio, print media and outdoor boards. This project is timely, as the monies received are used to augment the monies appropriated in SCDA marketing budget for the 2014 plant and flower shows.

The plant and flower shows sponsored by the SCDA have historically enabled a large number of SC producers of both ornamental and edible plants the opportunity to gain visibility, and make direct sales to customers, at a relatively low cost. One way that the costs have remained low for the vendors is having the advertising budget for this project stretched in the use of Specialty Crop Block Grant Program funding. The previous projects from former SCBGP Agreements have all had an increased trend in both the number of customers shopping at the festivals, and in the average amount that each vendor sold. These two trends both began an upward movement when SCDA coupled the two funding sources (general appropriations and SCBGP funding) together. Thus, given the successful past, SCDA continues to build the festival momentum that has been established through previous project funding. Vendors have indicated through survey responses from previous festivals that effective advertising has increased foot traffic, and thus, increased their sales. Vendors at these shows are only allowed to sell SC grown plant material. Therefore all project funds have been used to solely enhance the competitiveness of specialty crops.

Project Approach
In January of 2014, the project manager mailed registration forms for each of the six shows scheduled for 2014. The mailing list is taken directly from the database the project manager has established and manages. This database has the contact information for all previous vendors at the plant and flower festivals. Additionally, the project manager reached out to the stakeholder organizations for the horticulture industry (SC Nursery and Landscape Association and the SC Greenhouse Growers Association) and provided copies of the registration forms for any of their members that may be interested in participating as show vendors.

The dates of the plant and flower festivals in 2014 were as follows:

- Spring 2014
    - Pee Dee Plant and Flower Festival, Pee Dee State Farmers Market, Florence
      April 10-13
    - Midlands Plant and Flower Festival, State Farmers Market, Columbia
      April 17-20
    - Piedmont Plant and Flower Festival, Greenville State Farmers Market, May 1-4

- Fall 2014
    - Autumn Fest at the Market, Greenville Farmers Market, September 18-21

- Midlands Fall Plant and Flower Festival, State Farmers Market, Columbia
  September 25-28
- Pee Dee Fall Fest, Pee Dee State Farmers Market, Florence
  October 2-5

The project manager worked in collaboration with the SCDA Public Information Director and the contracted Public Relations Agency (Chernoff-Newman, LLC) in the development and purchase of radio spots for these festivals. Print media ads were created by SCDA Public Information staff members. To increase media exposure, SCDA Public Information Director was able to arrange for the Commissioner of Agriculture to appear on local television stations in both Public Service Announcements about the festivals, and as a guest on morning and mid-day broadcasts.

The budget allocations approved in the project plan as the budget breakdown enabled SCDA to purchase 700 radio spots, seventy five paid television commercials, twenty five newspaper ads, and one magazine ad.

Marketing staff members also utilized social media to augment these paid efforts, by posting information about the festivals on Facebook and Twitter sites.

Goals and Outcomes Achieved

- The number of customers increased by a total of 37,290 (approximately 15%), bringing the total customer count of all six festivals to 233,689 persons.
- On average, the vendors made between $2000-$3000 per festival. The average increase in sales was 12*%;* or more than $200.00 on average per vendor than previous years' or festival sales.

Beneficiaries

The beneficiaries of this project are the vendors that participate in the plant and flower festivals, and sell the plants that they have grown in South Carolina. The overwhelming majority of vendors indicated by survey that they will return to participate in future festivals. Only two stated that they will not be back. Also, on a scale of one to ten, with ten being the best, the average experience of the vendors was 8.4.

Economic impacts the Festivals provide include income to plant and flower producers in South Carolina, boosting the local economies by bringing in visitors to the local area for the festival, who then discover all our farmers markets have to offer and plan for future visits to the farmers markets. The increase in profits reported from the vendors, when applied to the economic indicators reveal the impact of the festival to be approximately $650,000.00 annually.

Lessons Learned

An ongoing concern from the vendors is that there is not enough advertising for the festivals. Although SCDA has increased advertising efforts for these shows throughout the past four years, the vendors would still appreciate more, especially radio and TV ads. Many stated that the print advertisements were rarely seen. To improve this situation, the project manager will place a greater emphasis on purchasing outdoor boards, and radio ad placements in future project years.

Another common complaint from the vendors was the scheduling of the festivals. One festival day fell on Palm Sunday; another festival coincided with The Masters Golf Tournament. Most vendors

experienced lower sales on these days when other events were occurring. There are many competing events in South Carolina during the spring season. To make sure that conflicts with other popular venues do not occur in the future, the project manager will double check on both event dates and major holidays prior to scheduling the plant and flower festivals.

Contact Information

Jackie Moore, Project Manager
SCDA Marketing Division
803-734-2210
jmoore@scda.sc.gov

Project Title: Providing Platforms for the SCDA and SC Specialty Crop Producers at Trade Shows outside of South Carolina

Project Partner
South Carolina Department of Agriculture, Marketing Division

Project Summary
More than 80% of the fresh fruit and vegetables produced in South Carolina are sold on wholesale markets located outside of South Carolina. To this end, the purpose of this project was to provide the SCDA and its numerous specialty crop producing stakeholders with financial assistance to exhibit at produce industry tradeshows that were held in 2013 and 2014. This project provided a platform for collaborative efforts to take place between individual producers and commodity groups at well-respected venues that were exclusively focused on the fruit and vegetable industries. Those participating promoted 'Certified SC Grown' specialty crops, and value-added items made from specialty crops.

The tradeshows/expos attended included the Produce Marketing Association Fresh Summit, Southeast Produce Council Southern Exposure Expo, and the Eastern Produce Council New York Produce Show.

The purpose of this project was to provide financial support to the SCDA and SC specialty crop producers so that the promotion of 'Certified SC Grown' fruits and vegetables at industry tradeshows could continue to take place. Competitive enhancement and increased sales volume is a by-product of successful execution at national and regional marketing trade shows, expos, and conferences. The opportunities to specialty crop growers and sales agents to participate in these established produce shows provides domestic growth in sales of fruits and vegetables, as well as protecting the base of volume of sales already established from erosion by imported crops entering the same market. It is critical and timely for our state growers to maintain these relationships and levels of sales volumes to remain competitive in the marketplace.

Now, more than ever, it is imperative for SCDA to offer every opportunity available to the specialty crop growers in South Carolina the ability to market their crops. The growers need to continue to capitalize on the locally grown trend, and repeated exposure to produce buyers, managers, leaders, and executives is invaluable. Each retailer/buyer attending an industry show is interested in learning what is new in crop production, food safety practices, and packaging options from the growers, as well as finding more sources of locally grown produce and value-added produce products.

SCDA has provided opportunities for fresh fruit and vegetable producers to participate in major food shows for several years. The SCBGP has helped us broaden our reach and develop exhibits that feature a diverse sampling of specialty crop producers from across the state of SC. At prior events we made contacts and quantified them via business cards. Follow-up was with producers and further follow-up on leads that led to actual sales. Use of new technology provided a much more efficient method of gathering data, quantifying leads, and sharing those among those participating in the show as well as other potential producers who could meet a need. This effort has continued to build on relationships formed at prior shows and helped identify new potential buyers. This allows us to more accurately determine the value of a particular event in terms of both new contacts and sales. While the actual sales data is proprietary to individual companies, they are willing to share how a show impacted on-going relationships in terms of sales as well as new business generated as a direct result of our providing a state showcase at these events.

Approach

The following shows were attended by SCDA Marketing Personnel, as well as representatives from each of the companies or commodity boards listed. Only specialty crop growers, producers, sales agents or commodity groups were allowed to participate in the execution of this project.

1. New York Produce Show, Eastern Produce Council, New York, NY, December 2013
   The New York Produce Show, hosted by the Eastern Produce Council and Produce Business News, is the premier produce trade show in the northeast market. SCDA exhibits at this show to reach buyers from this area. As the highest populated area of the country, these buyers represent a significant amount of sales volume for South Carolina specialty crop growers to utilize. Our extended growing season also provides fruits and vegetables ready for purchase months before farms in the Northeast.
   a. Exhibitors from South Carolina included SCDA, Chappell Farms (peach), Walter P Rawl Farms (value added produce, collards, kale)
   b. More than 2000 persons attended the show overall
   c. Forty (40) new contacts were made on behalf of SC specialty crop producers, a 10% increase from the number of contacts in 2012
   d. Face to face meetings were held between attendees from South Carolina with executives from Wegmans, Wakefern, A-Hold, Price Choppers, Kings Supermarkets, Giant Supermarkets, Albertson's, Aldi, and Associated Food Stores. The contacts made with buyers from these stores are imperative, as South Carolina producers sell more than 25% of specialty crops produced in our state to retail chains in the Northeast U.S. Consolidating time and resources to conduct business within the set time frame of the show is in the best interest of everyone involved.

2. Southern Exposure Expo, Southeastern Produce Council, Orlando, FL, March 2014
   The Southeast Produce Council Southern Exposure produce show offers growers from the Southeast an opportunity to exhibit in front of retail buyers from around the country. By highlighting growers from the Southeast, this trade show attracts buyers who source produce from one of the premier growing regions in the country. Many of the retail buyers at this event purchase from South Carolina as their customers prefer "local" products. Most of these stores have locations that include NC, SC, GA, TN, VA.
   a. Participants included SCDA, SC Peach Council, Chappell Farms (peach), Richter & Company (peach, bell pepper, broccoli), Watsonia Farms (organic stone fruit and organic vegetables), SC Watermelon Association, Melon One (watermelon, cantaloupes), Coosaw Farms (blueberries, watermelons, oriental greens), Walter P Rawl Farms (value added produce, collards, kale), McLeod Farms (peach, strawberries, vegetables)
   b. The attendance at this show was record breaking with over 3000 persons
   c. At the 2014, 54 new contacts in the produce industry was made; 14% more than were made in 2013.
   d. Direct face to face meetings were held between SC fruit and vegetable producers and retail executives from Publix, Rouses, WalMart, Sunny Valley International, Winn-Dixie/BiLo, and Delhaize America.

3. Fresh Summit, Produce Marketing Association, Anaheim, CA, October 2014
   This event is the largest produce show in the country, and attendees represent all major markets.

a. Participants included SCDA, SC Watermelon Association and Walter P Rawl Farms (value added produce, collards, kale). Due to the location in CA, it is difficult to attract more growers to participate in this show.
b. The attendance at this show was more than 18000 persons. Many of these are west coast buyers and foreign market representatives.
c. SCDA personnel made 86 new contacts, resulting in a 14% growth increase.
d. Direct face to face meetings were held between SCDA marketing personnel and WalMart, Delhaize America, and Costco.

4. New York Produce Show, Eastern Produce Council, New York, NY, December 2014
The attendance of this show grew 13% between 2013 and 2014.
    a. Attendees included SCDA, SC Watermelon Association, SC Peach Council, Chappell Farms (peach), Walter P Rawl Farms (value added produce, collards, kale)
    b. Attendance at this show is continually increasing; 2800 key retail representatives in 2014
    c. Sixty six (66) new contacts were made at the 2014 show. This was a 65% increase from the 2013 show.
    d. Face to face meetings were held between attendees from South Carolina with executives from Publix, Winn-Dixie/BiLo, Wegmans, Wakefern, A-Hold, Price Choppers, and A&P.

Goals and Outcome Achieved

The goals met by the execution of this project include the following:

- Provided exposure and interaction for retail associates with specialty crop industry decision makers
- Generated an increase in product sales growth due to increased market exposure
- Maximized the ability to introduce new products, packaging options and food safety efforts
- Identification of new opportunities through networking with key decision makers from all segments of the food distribution channels
- Learned about new consumer trends
- Increased demand for 'SC Grown' produce and value-added produce products through merchandising and promotional development efforts

The original workplan of this project included using a new electronic scanner to assist in tracking trade show attendees who demonstrated interest in SC specialty crops by stopping at the SCDA exhibit. As noted in the First Performance Report, it was found by staff members that the electronic scanner used during the show times on the expo floor easily enabled the electronic storage of detailed information of the attendants that visited the South Carolina exhibits. However, the use of the scanner proved to be awkward, as it typically interrupted the tonality of and content of the conversations being had. One marketing specialist described the use as uncomfortable, and said that guests of the exhibit became "more guarded" after having their tag scanned. One of the major benefits of these shows is engendering relationships from face to face contact. The scanners, although they met the objective of storing information, were no longer used as part of the exhibit research after the Fresh Summit in Anaheim. Despite the time saving activities involved, SCDA personnel decided to discontinue their use based on the perceived unpleasant experiences of those they "scanned" for information.

The target to increase the number of new sales contacts as a result of trade show participation by 10% was achieved, although the information was collected by the recording of business cards and personnel notes, instead of the use of the electronic data collector. At the end of 2013, the number of new contacts made by SCDA personnel in the produce industry was recorded at 146. These contacts are compiled of produce buyers, sales agents, produce merchandisers and/or produce managers. The total number of new contacts recorded as a result of trade show involvement for this project's timeline is 246. This number is taken from the following: Eastern Produce Council/New York Produce Show 106 contacts (10% increase) made in December 2013 and December 2014, PMA Fresh Summit Anaheim 2014, 86 new contacts (14% increase) and Southern Exposure/Southeast Produce Council 2014, 54 new contacts (12% increase).

Beneficiaries

As a continuing contributor in these well-known and attended shows, every specialty crop grower in South Carolina benefits from the ongoing marketing presence and exposure that is obtained by SCDA participation. But the following examples are notable accomplishments that are a direct result of participating in the above listed events:

1. Successful introduction of a new product by WP Rawl in the US market. WP Rawl is one of the six growers allowed under contract to grow and market 'Kalettes' in the US. This new hybrid kale has been under development in the United Kingdom for the past ten years, and the production of this new 'super kale' in the States has been widely anticipated by consumers and produce industry persons alike.
2. WP Rawl also gained distribution in Publix Supermarkets for a private label bagged leafy greens, value-added product. This results in a new highly positioned revenue stream as a result of show attendees being able to experience new products in person. With the ability to exhibit, and give samples of their product, WP Rawl was able to impress the produce buyers at Publix with their consistent quality found throughout their cut product, as well as the fresh taste, to secure a contract.
3. Increased development of an organic program with The Kroger Company by the family owned company Watsonia occurred due to SCDA presenting product information as well as an action plan to support rollout.
4. Identification of a new market opportunity was introduced by the Walther Corporation, who recently purchased 500 acres to produce sweet potatoes in our state.
5. Allowing continued participation in the trade shows has created additional growers to attend and feature several new value added products in the peach category with fresh processed peach puree and frozen sliced peaches were shown as a healthy alternative for schools, medical facilities, as well as other important outlets for category growth.
6. Coosaw Farms has been successful in increasing their volume of sales and distributions point with Publix Supermarkets with watermelons and blueberries, due to new traceability technology that was presented at Southern Exposure.
7. Other successful examples created from trade show participation come from many medium sized growers obtaining distribution in the Northeast Market as well as Canada, with South Carolina Peaches. These successful one to one meetings are critical components to continuation with trade show support from our grant programs and have created opportunity, income, jobs, and overall economic development for the state industry.

The number of participants at each show varies. However, participants range from 3 at smaller events to 8 entities at larger events representing individual farms or Associations representing an entire commodity group and its member producers (SC Peach Council for instance). Also, SCDA, participates as

an active exhibitor representing the entire specialty crop industry. The total quantification would be 7 peach packing facilities, 25 vegetable producers, 30 watermelon producers impacted directly or indirectly at each show. In addition the entire industry is represented and benefits from contacts and opportunities delivered from these program efforts. The program benefits the entire industry.

Lessons Learned

The electronic scanner used during the show times on the expo floor easily enabled the electronic storage of detailed information of the attendants that visited the South Carolina exhibits. However, the use of the scanner proved to be awkward, as it typically interrupted the tonality of and content of the conversations being had. One marketing specialist described the use as uncomfortable, and said that guests of the exhibit became "more guarded" after having their tag scanned. One of the major benefits of these shows is engendering relationships from face to face contact. The scanners, although they met the objective of storing information, will no longer be used as part of the exhibits. Despite the time saving activities involved, SCDA personnel have decided to discontinue their use based on the perceived unpleasant experiences of those they "scanned" for information.

Contact Information

Mr. Matt Cornwell
mcornwell@scda.sc.gov
803-734-2225

Project Title: 'Certified SC Grown' Retail Merchandising Program

Partner: South Carolina Department of Agriculture, Marketing Division

Project Summary

The intent of this project was to continue a successful 'Certified SC Grown' (CSCG) retail merchandising campaign to support sales growth for the specialty crop producers in our state. To achieve this outcome, new Point of Purchase (POP) materials, permanent signs, and price cards were designed, produced and distributed to more than 500+ grocery stores, 200+ roadside markets, and 125+ community farmers markets within South Carolina.

The impetus for the project was simply to help consumers "connect the dots" 1) easily identify fruits and vegetables that are produced locally and 2) increase sales potential for our state's specialty crop producers. Through research conducted by SCDA in 2007, consumers responded that they preferred local foods but could not identify them in the marketplace. The CSCG Brand and the merchandising efforts address this issue directly. By placing signage in key store positions in the produce sections, SCDA is able to help consumers identify that local peach, watermelon, cantaloupe, tomato, or a large assortment of other fresh, local fruits and vegetables. Farm producers have also included the brand on product packaging and individual PLU stickers to further drive the CSCG brand recognition and sales of South Carolina grown specialty crops. To help consumers understand the brand, a comprehensive media program encouraged them to look for signage identifying the local items they could not readily identify prior to the program. The program has met that need and research shows growth in unaided awareness of the CSCG Brand to help consumers identify local produce.

Previous projects funded by the SCBGP have used the same or similar ideas for retail store merchandising of the branding logo 'Certified SC Grown', and garnered impressive results to both the retail chain managers, and SCDA personnel. Data from previous seasons show that one retailer increased sales as much as 133% during the promotional season when the signage from the kits were displayed. This result is atypical; most stores reported growth in the 'Certified SC Grown' produce category to be in the range of 12-13%. This signage assists consumers in locating their locally grown produce purchases.

Approach

In 2014, a new component of the branding campaign was launched. Complete with a new tagline, 'Certified SC Grown: It's a Matter of Taste', was introduced by the Public Relations contracted firm, Chernoff-Newman, LLC. This approval took place in the last quarter of 2013. POP material development and production was scheduled to take place in February and March of 2014. Video crews were hired by Chernoff-Newman to tape and produce commercials in late March and early April. The only scenes for this commercial campaign were taped at specialty crop farms. These sites included Cooley Brothers/Strawberry Hill USA (peach, strawberry), Clayton Rawl Farms (vegetables, especially leafy greens), Joseph Fields Greenhouses and Farms (microgreens, vegetables, heirloom varieties). The commercials began airing on all major SC stations in May 2014.

In the spring of 2013, SCDA contracted the company Retail Detail Merchandising, to install the new POP materials in more than 550 retail grocery stores in SC. The employees were given retail kits that contained the new POP materials featuring the 'Certified SC Grown: It's a Matter of Taste' logo. Each one of these kits included five double sided logo ceiling hangers (24x36" each), 12 shelf talkers (4"x6" each), and 6 display strips (1/2" x 3' each). The materials were displayed exclusively in the produce department, and were placed in the appropriate locations to indicate which fruits and vegetables are

grown in our state. To ascertain the integrity of the program, and to assure that signage is displayed appropriately, clear instructions and plan-o-grams are distributed with each retail merchandising kit. Each merchandiser is required to obtain the store manager's signature upon completion of hanging/placing the point of purchase materials. All POP kits were in place at the 550+ stores by the beginning of May.

During mid-summer, the merchandising team members returned to each store to verify that the signage is still in the appropriate locations, and/or to replace any damaged or removed signage. Throughout the produce season, members of the SCDA marketing staff visit random stores and conduct audit checks of the POP material. These quality checks are made through the end of October, when the primary produce season in South Carolina comes to an end.

163 Certified Roadside Markets and 120 Community Farmers Market received new permanent all-weather signs that measured 4' x 6'. There was an increase of more than 28 new members of the SCDA Certified Roadside Market program and 18 new Community Farmers Markets. Each sign is printed on both sides with the 'Certified SC Grown' logo in the center, and the language 'South Carolina Certified Roadside Market'. Market operators appreciate these signs, and the continuity in color and trademarked logo attract drive by customers for direct sales. Many experienced and successful operations have been able to expand their market efforts into agritourism destinations; especially unique producers of specialty crops such as wineries, pumpkins, u-pick strawberries, and Christmas trees. All surveyed indicate an increase in sales by more than 16% in the 2014 growing/peak operational season.

The total number of Point of Purchase materials distributed within South Carolina was 15,000 aisle interrupters, 25,000 large price cards (5"x8"), 25,000 small price cards (2"x3"), 2500 window clings, and 5,000 channel strips. All materials featured the 'Certified SC Grown' logo. Examples of the artwork is included in this report.

Goals and Outcomes Achieved

28 additional Certified Roadside Markets, 18 additional Community Farmers Markets were added to the SCDA database during this project timeline. The growth in numbers of these markets can be attributed to the successful 'Certified SC Grown' brand and logo. Post distribution surveys of market owners indicate that customer traffic increased from 12% to 38%, once the large, permanent signage was in place. Overall, the sales of specialty crops, as reported by producers, increased by 16% in 2014.

Beneficiaries

All specialty crop producers in SC have benefitted from this campaign, as it concentrates on keeping the brand awareness of locally grown produce in front of the consumer. South Carolina has 512 specialty crop producers in the state, according to the SC Fruit, Vegetable and Specialty Crop Growers Association. However, the large packers in the state and/or those that are GAP certified, or work with a HAACP certified Food Hub (Grow Food Carolina, Limehouse Foods, Francis Produce) receive a more direct benefit of the retail merchandising program, as the project lies heavily on the retail grocery store chains and you must have received at least one these certifications to sell wholesale. However, this project does not exclude those who do not sell through wholesale channels, as it will also continue to provide funding for roadside market operators, or those who sell at local community markets. In most cases, these vendors depend on the large, colorful 'Certified SC Grown' signage that is distributed at no cost to them, to draw attention to their booths at these market venues.

Lessons Learned

By informally asking most of the recipients of the all-weather signs for the Roadside Markets and Community Farmers Markets, SCDA staff learned that should the Department ever need to charge these program participants for the signs, they would not purchase them, as they exceed their advertising allowances. Most also indicated that all programs offered by SCDA to promote the sales of their specialty crops being free of charge keeps them re-enrolling each year.

Contact Information

Ansley Rast Turnblad
Program Manager, Certified South Carolina
803-734-2210
arast@scda.sc.gov

Additional Information

Artwork proofs for materials purchased through this funding source:

SHOP LOCAL
BUY SOUTH CAROLINA

IT'S A MATTER OF TASTE.

CERTIFIEDSCGROWN.COM

scag_7672_PDF_largepricesign_11x7_003.pdf 1 5/25/16 2:44 PM

scag_7672_PDF_windowsling_8.5x11_002.pdf 1 5/25/16 2:43 PM

Project Title: Financial Assistance to Specialty Crop Producers Seeking Good Agricultural Practices (GAP) Certification

Partner
South Carolina Department of Agriculture, Inspections and Grading Division

Project Summary
This project was used as a mechanism to continue financial support to specialty crop producers that received Good Agricultural Practices training, audit(s), and certification. It was a continuation of previous projects that were part of Specialty Crop Block Grant Program Agreement numbers 12-25-B-1486, and 12-25-B-1253. As with each of the projects in the previous agreements, all monies allotted through this agreement were used to defray the costs of conducting GAP audits for the specialty crop producer.

The overarching purpose of this project was to continue to secure a safer food supply that is produced in South Carolina. Specifically, the project goal was to increase the number of produce farms that have passed a GAP audit, and received their certification. This goal was met by incentivizing specialty crop producers to participate in the GAP program by providing a cost share program to which they would qualify after receiving certification.

Project Approach
SCDA inspections staff notified the public of the available cost share funding at each of the six training sessions about implementing Good Agricultural Practices on their farms. These sessions were held in different locations around the state, making it easier for specialty crop producers to attend, due to shorter travel time. On average, 21 specialty crop producers attended each of the trainings.

SCDA also posted the information on its website, www.agriculture.sc.gov.

In addition to these efforts, the South Carolina Fruit, Vegetable, and Specialty Crop Growers Association posted the cost share program in each of their 2014 newsletters.

During the summer season, SCDA inspections staff visited growers on their farms, and conducted GAP audits.

Goals and Outcomes Achieved
In 2014, twenty three (23) on farm site visit trainings were conducted, and a total of fifty one (51) producers of specialty crops were awarded certification in Good Agricultural Practices.

The benchmark was 30 farms, and the target was to have a more than 30% increase. This goal was exceeded with a 70% increase in the number of specialty crop growers that are GAP Certified in our state, from the number in 2013.

Beneficiaries
Obviously, the primary beneficiaries of this project are each of the fifty one (51) growers that received their certification. By obtaining this standard level of food safety compliance, each farm is able to sell their fresh fruits and vegetables to an increased number of wholesale markets.

The general public is also a beneficiary as the product they are consuming has been handled at all stages of production, and post-harvest handling, has been executed with higher food safety measures at all levels.

Lessons Learned

One of the largest challenges to this program/project has been the lack of training materials for the growers that attend the training sessions. There is also a need to hold more training sessions.

Contact Information

Jack Dantzler
Director, SCDA Inspections and Grading
803-737-4597
Jack.Dantzler@ams.usda.gov

This concludes the end of the Final Performance Report for Agreement 12-25-B-1695 from the South Carolina Department of Agriculture